IS CULTURAL NEUROPHILOSOPHY POSSIBLE?

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ABSTRACT

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The aim of this work is to give an outline of a broader project, which I call *cultural neurophilosophy*. Neurophilosophy is the proposal that to illuminate the ancient and recent philosophical questions, we should study nervous systems. Cultural neurophilosophy is a project targeting at improving neurophilosophical arguments developed and defended by the Churchlands for the last four decades. This improvement is designed so as to put neurophilosophical perspective in a cultural context. By cultural context I have in mind all the dimensions of social and cultural life, including but not limited to political structure, social evolution, the mode of production, the socio-political history, economic relations, ethical values, cultural customs, and legal system. Because human brain is its most social organ, and human behavior is shaped by the cultural matrix in which we all live, in order to illuminate human behavior, we must study cultural and social sciences in collaboration with brain and behavioral sciences. Here I argue that such an interdisciplinary project is essential for a realistic explanation of human behavior.

Keywords: neurophilosophy, cultural neurophilosophy

ÖZ

KÜLTÜREL NÖROFELSEFE MÜMKÜN MÜ?

Tümkaya, Serdal
Yüksek Lisans, Felsefe Bölümü
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Bu çalışmanın amacı daha geniş bir projenin, *kültürel nörofelsefe*'nin ana hatlarını ve olası yararlarını incelemektir. Nörofelsefe kadim ve yeni felsefi problemlerin çözümlerinin aydınlatılabilmesi için sinir sistemlerinin çalışılması gerektiğini savunan bir yaklaşımdır. Kültürel nörofelsefe kırk yıldır Churchland'lar tarafından kurulan ve geliştirilen nörofelsefi savları geliştirmeyi hedefler. Burada ben nörofelsefeyi onu kültürel bir bağlamın içerisine yerleştirerek geliştirmeyi hedefliyorum. Kültürel bağlam derken kastettiğim şey asgari değil azamidir. Yani ben kültürel bağlamı şunları da içeren ama onlarla sınırlı olmayan şekilde ele alıyorum: politik yapı, sosyal evrim, üretim tarzı, sosyopolitik tarih, ekonomik ilişkiler, etik değerler, kültürel adetler ve hukuk sistemi. İnsan beyni onun en sosyal organı olduğu ve ayrıca insan davranışı insanın içerisinde yer aldığı kültürel matris tarafından şekillendiği için insan davranışını aydınlatabilmek için beyin ve davranış bilimlerine ek olarak sosyal ve kültürel bilimleri de işbirliği içerisine sokmamız gerekir. Ben burada böyle disiplinler arası projenin gerçekleştirilebilmesinin insan davranışının gerçekçi bir resmini elde etmek için elzem olduğunu savunacağım.

Anahtar Kelimeler: nörofelsefe; kültürel nörofelsefe

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CHAPTER 1

INTRODUCTION

Philosophy is not like *modern* natural sciences. Their methodologies are quite different. Natural sciences are supposed to be working with universally accepted methods. That does not mean that the current methodological practices of natural sciences could not have been otherwise. They could have been. Yet they did not. In physics or chemistry, you cannot opt for giving up the experimental testing of theories. There is no reasonable way of doing natural science without using mathematical tools. In contrast, modern philosophy is conducted in several and sometimes conflicting ways. Besides exotic philosophies, in the Western world, we have at least four major philosophical methodologies: continental, analytical, postmodern, and natural philosophies. There are major differences among them, in addition to their minor overlapping points. Any philosopher can be put into any combination of these four schools, such as non-naturalist analytical or post-modern continental philosophy. Furthermore, all philosophical schools have their own inner division. For example, in one of the chapters of this thesis, I argue that neurophilosophy is a highly distinct minority view within the naturalistic school. Having all these said, it becomes clear that the be-all and end-all of this work is to present my own perspective on the question of how to do philosophy in the most productive way. My answer is that we should get closer to the sciences in general, but to the brain and behavioral sciences in particular. Through almost all chapters of this work, I will be putting hard efforts to find the possible meanings of these claims made by many naturalists. Giving a special role to the brain and behavioral sciences

within the sciences in general is unique to the marginal camp of neurophilosophy. In this work, I defend the idea that brain and behavioral sciences deserve this specially assigned role in a limited sense. But I also argue that the Churchlands, the founder parents of neurophilosophy, too, used the term *neurophilosophy* in a limited sense, but their limits are still much wider than what I present here. That is, my argument, though heavily depends on and follows the ideas and the line of reasoning developed and argued for by the Churchlands for the last four decades, is more relaxed than their position. By the expression 'more relaxed' I have no intention of asserting that my approach is moderate or less marginal than the Churchlands'. What I mean is that *brain and behavioral sciences* should be thought in a wider sense. For example, some branches of archeology, anthropology, evolutionary biology, and psychology are to be regarded as brain and behavioral sciences. Though some may think that this is trivial, it is not. The neuroscience is the science of brain and the nervous systems. These are not common organs, but "The brain and the nervous system are our most cultural organs"(Lende & Downey, 2012). That is my utmost reason for offering a *cultural neurophilosophy*.

Before having described cultural neurophilosophy, let me explain what is neurophilosophy as I construe it. Neurophilosophy proposes that in order to illuminate philosophical problems, we should study the structure and functioning of nervous systems[1]. It does not mean that *all* philosophical puzzles can solved by neural sciences, but means that *some or many of them* could be solved, revised, or eliminated by brain and behavioral sciences. Consciousness, the nature of representation, personal identity, the self, free will, ethics and human nature are arguably the most suitable philosophical topics to which brain and behavioral

[1] The following is a more complete version of the core hypotheses of neurophilosophy: "Hypothesis 1: Mental activity is brain activity. It is susceptible to scientific methods of investigation.
Hypothesis 2: Neuroscience needs cognitive science to know what phenomena need to be explained. To understand the scope of the capacity you want to explain—such as sleep, temperature discrimination, or skill learning—it is insufficient to simply rely on folk wisdom and introspection. Psychophysics, and experimental psychology generally, are necessary accurately to characterize the organism's behavioral repertoire and to discover the composition, scope, and limits of the various mental capacities.
Hypothesis 3: It is necessary to understand the brain, and to understand it at many levels of organization, in order to understand the nature of the mind." (P. S. Churchland, 2002, p. 30)

sciences can make remarkable contributions. It might be asked "what I mean by studying nervous systems". It includes a thorough comparison of the nervous systems of different species, a close examination of the working principles of human brain, trying to figure out developmental trajectory of brain development, developing models of brain's cognitive functioning, and discovering the evolutionary history of nervous systems. Of course, neuroscience is intrinsically interdisciplinary study area, and nobody can dictate what and how it should study. Thus psychology, cognitive sciences, and anthropology are potential allies of neurosciences. For now, it is vitally important to note that neurophilosophy is not an abstract call for or principled conceding of the importance of neurosciences for philosophy. The founders of neurophilosophy, Patricia and Paul Churchland, have already made many concrete attempts to link neuroscience with philosophy. They, especially, explored the impact of scientific developments on our understanding of visual perception (P. S. Churchland, 1982a), the nature of representations (P. M. Churchland & Churchland, 1983; P. S. Churchland & Churchland, 2002; P. S. Churchland & Sejnowski, 1990), epistemology (P. M. Churchland, 2012; P. S. Churchland, 1987), philosophy of science (P. M. Churchland, 1989a), morality (P. S. Churchland, 2011), human behavior (P. M. Churchland, 1989b; P. S. Churchland, 2013), consciousness (P. S. Churchland, 1983, 1994, 1997, 2002) and mentality (P. S. Churchland, 1986). That is to say, being a neurophilosopher requires applying available brain studies to philosophical problems. Otherwise, what you do would not be *defending* neurophilosophical approach, but be having a position *compatible with* neurophilosophy. Though these two are not exclusive, they are not identical either. In the same way, my proposal, cultural neurophilosophy, should not be taken as *merely granting* the importance of social scientific works to understand philosophical problems, but should be taken as a promise *to really apply* the relevant social scientific work to neurophilosophical analyses[2]. Now I shall proceed to explain what cultural neurophilosophy is.

[2] Obviously, there are numerous philosophical proposals that can be seemed as alternative to neurophilosophy such as embodied and distributed cognition (Barrett, 2011), extended mind hypothesis (A. Clark, 2008), situated cognition, enactivism or radical enactivism (Hutto & Myin,

To a first approximation, cultural neurophilosophy is the thesis that to have meaningful solutions to philosophical problems, which could only be understood by studying nervous systems, which is our most cultural organ, this neural study must be synthesized with *social and cultural sciences*. Let me briefly explain what I have in mind with the phrase of social and cultural sciences. Even the most commonly known social sciences are hard to list here, but some are the following: economics, politics, sociology, anthropology, archeology, psychology, cultural and gender studies, criminology, demography, geography, communication sciences, business, law, public administration, history and linguistic. The most common feature of all these sciences is that they are about social structures and inter-personal relations. Since all of them are about society and individual, we can say that they are the natural parts of human sciences. Thus, the unity of reality forces us not to restrict ourselves to any single major division of sciences, such as natural, formal, or social. Now I come to the point of this work: is *the current form of neurophilosophy* compatible with this line of reasoning? My answer is that it *is* not, but it *could be* reformulated so as to be compatible with my understating of *the unity of reality*. This thesis is done for that ultimate reason.

To achieve that end, I first describe what neurophilosophy is and briefly sketch its history. Secondly, I critically discuss the major differences between neurophilosophy and mainstream philosophies. Thirdly, I present and argue against *three naysaying arguments against the relevance of neurosciences to philosophy*. Fourthly, I offer a name revision to the mostly known element of neurophilosophy, i.e. so-called eliminative materialism, in order to make neurophilosophy more

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2012), phenomenology (Gallagher, 2006; Zahavi, 2001) or neuro-phenomenology (Metzinger, 2003), and many other allegedly holistic and interactive theories. Most of these theses are naturalistically-oriented and scientifically-informed. Since they all emphasize the importance of going beyond the brain and to the body, environment, and intersubjective relations, one can easily get the impression that cultural philosophy is on the same track with those alternative proposals. That is not the case. It is true that all the theories I have listed just above are on the right track to go beyond the skull, neurophilosophers have never defended an idea that traps the study of mind into the skull. Therefore, I do not criticize neurophilosophers as if they do not go beyond the brain. That is not the case. That the Churchlands always emphasized the central role of the environment is demonstrated in the next chapters. For the time being, it suffices to say that here what I am trying to do is to show that environment in mainstream philosophy, including all the alternative holistic theories, is considered too narrowly. Large-scale social structures and relations are the very important parts of our social environment. Neurophilosophy has missed those parts, but alternative views are no better at this issue.

acceptable and understandable by the philosophers and social scientists. Fifthly, I attempt to figure out the precise positioning of neurophilosophy within its base camp, namely naturalistic philosophy. Next, I closely examine some very-hot topics regarding neurophilosophy, such as reductionism, eliminative materialism, and folk psychology. Then, I come to my central example to illustrate what cultural neurophilosophy really is. To do this, I bring the human nature question to the table to discuss in detail. Since the Churchlands have never made a book length treatment of the problem of human nature, I present *cultural biology*, and compared it to one of its rival approaches, *evolutionary psychology* (EP, from now on). In fact, the name *cultural neurophilosophy* is the combination of *neurophilosophy* and *cultural* biology. Cultural biology (CB, from now on) is the thesis that environmental inputs have profound influences on human *gene expression, brain development*, temperament, personality, and behavior. By environmental inputs, that thesis implies all the extra-DNA influences such as epigenetic factors, chance factor, and also social and environmental effects.

Cultural biology has a distinct understanding of how evolutionary processes happen, the level of neural plasticity, the degree of innate specializations of the brain, the level of behavioral flexibility, the conception of genes, the role and forms of learning, the question of the existence of human universals, how much work synaptic tuning to do, whether "mature cortical structure unfolds through intrinsic maturational programs, in which the environment's role is exhausted by a simple 'triggering' event", whether "the environment [is or] is not reduced to a minor role, or instead fundamentally shapes the developing cortex well into the second decade of life […]" (Quartz, Pinker, & Trehub, 1997). If you measure CB against EP, you easily see the real and fundamental differences between them. EP argues for the innateness of cognitive mechanisms. Because "innate cognitive mechanisms depend on the sustenance of an appropriate proximal environment for their proper development" (Quartz et al., 1997), EP assigns a triggering role to the environmental inputs, a role which is really minor.

If CB is not plausible, then my project would collapse, because my project is based upon the anticipation that studying nervous system requires a thorough understanding of environmental effects on it. In order to have a deeper understanding of the environmental effects on nervous system, we have to study the structure and the functioning of society and culture. By society and culture, I consider all the factors from written laws to cultural customs, from economic system to the social and political history of a society. It must be clear that such a project cannot be achieved by a philosopher, or a social scientist, or a neuroscientist alone. It is something to be accomplished by a team of researchers from across all academic disciplines. But here what I would like to do is to discuss the possibilities or requirements of such a project.

At this very point, let me explain why I allocate a huge portion of this work to the comparison of CB and EP. The reason is that neurophilosophers like the proponents of both CB and EP, presuppose the evolutionary perspective on human nature as a backdrop. So do I. However, unfortunately, in our country, Turkey, unlike Anglo-American philosophical world, evolutionary approach is not widely held in human sciences and philosophy. This might be due to misinformation and prejudices about evolutionary theory. Unless these prejudices and misinformation are cleaned up, these philosophers continue to be afraid of neurophilosophy. One very common prejudice is that evolutionary approaches to human sciences have a very strong tendency to collapse into biologism, in the sense that all human behaviors are strictly determined by purely biological processes. In this work, I argue against that common prejudice. In the fifth chapter, I shall defend the idea that taking evolutionary biology as a background theory does not prevent us from holding a holistic view on human behavior.

In the first half of the sixth chapter, I introduce the second (and vastly messier) part of the story of human behavior: social and cultural factors and their sciences. Because our species is *intensely* social, we can say that sociality is our second nature. By the phrase ‘second nature’, I mean that our social needs, such as the need for belonging to a group and caring for the loved ones, are part of our nature. Survival

and reproduction is the most basic animal instincts. As valid for all other animals, those two instincts are our first nature. This is why sociality is our second nature. Of course, sociality as a biological adaptation cannot be separated from the more ancient trait of struggle for survival and reproduction. New adaptations do not mechanically added into the existing ones. They are interwound in a very complicated manner so as to become a unified trait. Thus maybe we should not call sociality or culture our 'second nature'. Instead we should see it as what constitutes us, culture radically combined with our ancient biological heritage. Since we do not yet have a suitable word for that combined and unified human trait, it is reasonable, for the time being, to call culture our second nature.

In the first two sections of the sixth chapter, I make explorations on which social sciences are supposed to explain social practices and institutional norms. I answered that question in the following way: sociology, cultural anthropology, history, political science and economics. Cultural neurophilosophy shall work at the interface between these social sciences and neurophilosophy. Here I must note in advance that there are many proposals both in life sciences and social sciences that claim to incorporate social factors into biological ones. "Biopsychosocial paradigm" (Freedman, 1995) in psychiatric literature, "cultural neuroscience approach to the biosocial nature of the human brain" (Han et al., 2013), and genopolitics (Fowler & Schreiber, 2008) at interface of genetics and political science are just three of the many of this kind of theories. But in my thesis, I make an important distinction between small-scale social relations and structures, and the large-scale ones. Both of these are social scientific studies. However, the former is the research focus of the holistic theories that I listed just above. The latter is, I shall argue in the sixth chapter, the missing side of the story of human behavior and nature.

In the second half of the sixth chapter, I deal with four potential naysaying objections to my project. These are the following: incoherent, groundless, useless, and irrelevant. Probably, each reader of this work would hold one or more of these objections. There, I try to address those objections. Obviously, I cannot *certainly*, for the time being, claim that my project is perfectly coherent, empirically well-

grounded, philosophically very useful, or decidedly relevant to the most interesting philosophical puzzles. It might turn out to be none of them. There is no guarantee of success for a cultural neurophilosophy project. That there is no guarantee of success should not prevent us from attempting to evaluate the prospects for such a project.

CHAPTER 2

IN DEFENSE OF NEUROPHILOSOPHY

Philosophy, whatever it is, is relevant to the study of humans and the universe. The study of humans requires studying her temperament, personality, mind, and behaviors. Furthermore, since we are intensely social animals, the cultural practices, social institutions, and the world history have huge influences upon us. That is, a sound and worthwhile study of humans should be scientifically-oriented with an eye on the big picture, which is traditionally seen as the pursuit of philosophy. To the best of our knowledge, all human behaviors and psychology are mediated through our nervous system. For that reason, the study of the neural world, i.e. neurosciences, must be a natural part of the study of humans, namely philosophy. This perspective is known as *neurophilosophy*. This chapter aims to correct the misconceptions about it. By doing so, I anticipate to render neurophilosophy more acceptable by the philosophical community.

Neurophilosophy is rejected, by the mainstream philosophers, on the following grounds: i) brain knowledge is irrelevant to the important philosophical problems, ii) the neurosciences are too immature, for the time being, to have significant contributions to philosophical investigation, iii) philosophical study is also about accepted norms, but sciences are about the way the world is. Here I argue that all these three widely-asserted objections are based upon a misunderstanding of what science is, and how it is currently being practiced. First, human brain is the

biological platform over which all humanity has arisen. Thus it should not be irrelevant to the study of humans. Secondly, it is a plain fact that the brain science, though being in its infancy for this very moment, is maturing fast. Lastly, despite the fact that the norms cannot be *deduced* from the way the world is, a thorough examination of the latter has a huge potential to *illuminate* the most important philosophical puzzles, such as consciousness or morality (Tümkaya, n.d.-a).

2.1. What is Neurophilosophy?

2.1.1. The Different Definitions of Neurophilosophy

At its core, neurophilosophy claims that in order to understand mind, we should study nervous systems (P. S. Churchland, 2007, p. 185). Some sees it as "a branch of neurosciences" (Paris Albert, Comins Mingol, & Roda Bruc, 2013, p. 63), whereas the others view it "as concern[ing] application of neuroscientific concepts to traditional philosophical questions" (Bickle, Mandik, & Landreth, 2012). A parallel but more detailed definition is the following: "Either traditional philosophical questions are straightforwardly answered in scientifically responsible ways in light of neuroscientific data, or the questions are reconstructed so that they become responsible to scientific evidence and methods, or such questions are simply seen to be anachronistic non-starters" (Solymosi, 2011, p. 349). Neurosciences are at the heart of neurophilosophy, since humans have brains and thus "our mental states are brain states" (P. S. Churchland, 1980, p. 186). In one sentence, neurophilosophy is naturalist, materialist, monist, and scientifically-informed.

In short, neurophilosophy offers a method to explore old and recent philosophical questions. This method is the way of humanities and sciences as a continuum. Thus it is naturalist. This kind of naturalism is not only respectful for and a sympathizer of sciences but also is scientifically informed. By sciences, I do not only mean, contrary to what many will think, physical and biological sciences but also social, behavioral, economics sciences, administrative, and human sciences.

2.1.2. The historical roots and ancestors of neurophilosophy

Singling out the oldest precursor of neurophilosophical approach is too hard since linking our mind (or soul, reason, intelligence) to the brain has its root at least to ancient Greek civilization. For example, "Alcmaeon inferred that the brain was the seat of intelligence […]" ("Alcmaeon," 2014). At the time of Alcmaeon and after him, some ancient thinkers (e.g. Hippocrates) had developed a class of biochemical theories of temperament. Indeed, the modern founder of neurophilosophy, Patricia Smith Churchland, says that "The naturalist tradition, typified by Hippocrates, Aristotle, Hume, […] favors the hypothesis that mental functions map onto a certain kind of physical organization. In other words, they are brain activities" (2007, p. 185). In this sense, the old naturalist philosophy is conceived as the precursor of neurophilosophy. But of course not all naturalist philosophers would agree that we *should* study the brain to understand mind, despite the fact that they are some kinds of naturalist. Furthermore, there are lots of well-known philosophers who are some sorts of (property) dualist (Chalmers, 1996, 2006b). Both of these philosophers might, in principle, well agree with the naturalist tradition typified by Hippocrates and Aristotle, but disagree with neurophilosophers. Thus it becomes clear that neurophilosophy is something much more than mere physicalism, naturalism, or scientifically-minded other philosophies. The pre-19th century thinkers, except David Hume (2000), I believe, do not a have direct and significant influence on neurophilosophers. On the other hand, thinkers such as John Stuart Mill (e.g., 1985) and Adam Smith (e.g., 1981, 2002) are highly influential on the formation of, at least the Churchlands' type of, neurophilosophy. Among behavioral scientists, William James and Wilhelm Wundt might be considered as the modern ancestors of neurophilosophy, as understood above. Throughout the 20th century, there have been many naturalist philosophers such as Dewey, Place, Smart, Sellars, Kuhn, Quine, Armstrong, Peirce, Feyerabend, Rorty, von Eckardt Klein, Dennett, P. S. Churchland, P. M. Churchland, Bechtel, Bickle, Mandik, Northoff, Ramsey. In fact, according to "a data-gathering exercise in the sociology of philosophy" conducted in 2009 by Bourget and Chalmers[3] (2013), the half of the participants responded

[3] "Ideally, a survey such as this one would be sent to every professional philosopher in the world. However, it is not easy to determine just who is in this group and to gather contact details for the group. […] Instead, we chose as a target group all regular faculty members in 99 leading departments

positively (accept or lean-toward) to the question of "Metaphilosophy: naturalism or non-naturalism?" The aim of that study was to survey "the philosophical views of contemporary professional philosophers? We surveyed many professional philosophers in order to help determine their views on thirty central philosophical issues" (Bourget & Chalmers, 2013, abstract). In this study, the participants were mostly from (strong) analytical tradition and working in the Anglo-Saxon world and continental Europe. The target group was all regular faculty members in 99 leading departments of philosophy. Because arguably the potential defenders of neurophilosophy are much less in continental philosophy than in analytical philosophy, the result suggests that neurophilosophy is still highly marginal in the global scale. More importantly and presumably neurophilosophy is even a minority view within naturalist philosophy. For that reason, I should clarify the unique claims of neurophilosophy within naturalistic tradition. In the following subsection, I try to separate several and sometimes conflicting types of naturalism, and attempt to find the appropriate place for neurophilosophy within naturalistic philosophy.

Many people intuitively believe that naturalist philosophers are science-friendly thinkers. Indeed, Quine states that "Naturalism holds that there is no higher access to truth than empirically testable hypotheses" (1995, p. 251). However, the point is not to be science-like philosophy but to have a deep and infallible respect for truth (cf. P. S. Churchland, 2013). A worthy philosophy should have "the virtues of workmanlike truthfulness" (Williams, 2002, p. 24). To put it differently, naturalistic philosophy, at least, is (or should be) truth-addicted. How to reach the truth is the point that distinguishes the approaches within naturalistic tradition. For example, in analytic tradition, intuitions, introspection, symbolic logic, rational argumentation, thought experiments, conceptual, and linguistic analysis are the most widely used tools of figuring out the truths about our universe and ourselves (Tümkaya, n.d.-b). However,

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of philosophy. […] The overall list included 62 departments in the USA, 18 in the UK, 7 in Europe outside the UK, 7 in Canada, and 5 in Australasia. It should be acknowledged that this target group has a strong (although not exclusive) bias toward analytic or Anglocentric philosophy. As a consequence, the results of the survey are a much better guide to what analytic/Anglocentric philosophers (or at least philosophers in strong analytic/Anglocentric departments) believe than to what philosophers from other traditions believe." (Bourget & Chalmers, 2013, sec. 2.1)

none of the above requires you to be a naturalist. One can define herself as an analytic philosopher while declaring her/him as non-naturalist as shown in the study conducted within the faculty of the leading analytic philosophy departments (Bourget & Chalmers, 2013). Then what are the substantial differences between these analytic but non-naturalist and naturalist but non-neural philosophers and neurophilosophers? I examine these differences in the following subsection.

2.2. The major differences between neurophilosophy and mainstream philosophies

2.2.1. Intuitions and introspections

Neurophilosophers do not regard philosophical intuitions as a reliable tool. They argue that intuitions might be highly subjective, groundless, and subject to change as our scientific knowledge increase (P. S. Churchland, 2007). Furthermore, the arguments coming from the dissonance between the scientific hypotheses and our intuitions, i.e. *intuition dissonance*, "is a poor indicator of truth" (P. S. Churchland, 1992, p. 2). The use of intuitions in philosophical argumentation is being powerfully criticized by the fast-growing research area called *experimental philosophy*. According experimental philosophical studies, intuitions of both lay people and expert philosophers vary greatly through non-truth conditions such as socioeconomic status, ethnicity, race, gender, age, nationality, and so forth, hence is epistemic relativism. Epistemic relativism is a serious problem for (armchair) philosophy, since intuitions in (analytic) philosophy are used to attain knowledge. Knowledge is an (accepted, justified, or etc.) true belief. For having true belief, relying on our relative intuitions is not the best way. Then, it can reasonably be suggested to give up using intuitions as a reliable tool. Scientific image of the world and of ourselves is needed to illuminate philosophical problems.

Introspection refers to observing one's own mental states, a close self-examination. Self is one's consciousness of one's own being. Thus introspection is about having a close examination of something. This something is mental realm,

which can sensibly be presumed as the result of a dynamic neural pattern of activity. By that, we are in front of a situation in which we might be observing a neural activity. Neural activity is an objective phenomenon that can be studied from the third person perspective, i.e. subjected to scientific examination instead of self-examination. It does not mean that there is no such a thing as subjective experience. Of course, there is. The problem is that the phenomenon is examined from two different perspectives, and it is perfectly possible that one of them is more accurate than the other. It is well-known that observation is, if not scientifically systematic, deeply prone to error. Taking for granted theory-ladenness of observation, our self-examination, i.e. observation of one's own mental states, is theoretically framed. All theoretical frames are learned or inherited. As a consequence of this line of reasoning, introspection, according to Paul Churchland (1985), is something learned by linguistically and by experience. It depends on one's conceptual framework, thus in turn introspection depends on the wisdom embodied in that framework. Because all learned conceptual frameworks are subjected to change, they are not infallible. All these strongly suggest that we should not rely on our introspective abilities to attain the truth about philosophical problems. Introspection is a widely-used tool of analysis of both analytic and continental philosophy. Neurophilosophy, at this point, disagrees with both of them. This is a very important distinction between them.

2.2.2. Formal logic

According to Patricia Churchland, "since our judgments about what entails what will not be independent of our beliefs about what is true and what is false, the assignment of logical form is therefore not independent of what we believe there is in the world" (P. S. Churchland, 1974, p. 600). One may immediately object to Churchland's claim in the following way. Logical deduction (i.e. deductive reasoning) is independent of our beliefs, because it is about determining the validity of the argument. The truth value of a conclusion is determined by applying the necessary logical rules and by the truth values of the premises, assuming that premises are well-defined. However, in practice, any (i.e. existing, real, informal, philosophical) arguments implicitly contain many background beliefs and practical

assumptions, in addition to its explicitly stated premises. Put differently, philosophical arguments do rarely have strict logical form. Rather, they are informal. For these reasons, philosophical reasoning about what premises entails what conclusions are not independent of our beliefs about what is true and what is false.

2.2.3. A priori argumentation

"A priori argumentation", Patricia Churchland claims, "about the impossibility of science discovering such this or that" demonstrate not something about the issue at stake but about the personal level of knowledge of a particular philosopher (1986, p. 3). This sort of arguments is sometimes applied to phenomenal consciousness (Chalmers, 2006a; Nagel, 1974), to the qualia (Levine, 1983), or to the self (Baggini, 2011). These objections to the neurophilosophy in particular, but to the centrality of scientific thought in general, are mostly based upon argument from ignorance. As Churchland puts it:

> What used to pass for a priori arguments about the impossibility of science discovering this or that (such as the impossibility of discovering that space is non-Euclidean or that mental states are brain states) were sometimes merely arguments based on what could or could not be imagined by some individual philosopher. Since what can or cannot be imagined about the empirical world is not independent of what is already understood and believed about the empirical world, failures of imaginability were all too often owed to ignorance or to inflexible imaginations. (P. S. Churchland, 1986, p. 3).

At the cited passage, Churchland put the same line of reasoning in place as done when argued against intuitions and introspections. On the other hand, both analytic and continental philosophies frequently exploit the argument of *impossibility of science discovering this or that*. Neurophilosophy attributes these types of flaws to ignorance, inflexibility of imaginations, intuitive resistance to scientific materialism, or to the occupational concerns (i.e. saving departmental positions).

2.2.4. Thought experiments

The best-known examples of thought experiments in analytic philosophy are Mary the color scientist, zombies, Putnam's Twin earth, Searle's Chinese room, the

Trolley problem, and the inverted spectrum. Thought experiments are also used in theoretical and experimental sciences. Some of the prominent examples are Schrödinger's cat, prisoner's dilemma, the ladder paradox, the twin paradox, and the lottery paradox. From the perspective of neurophilosophy, thought-experiments are legitimate but:

> Gedanken-experiments [i.e. thought-experiment] are the stuff of theoretical science, but when their venue is so surpassing distant from established science that the pivotal intuition is not uncontroversially better than its opposite, then their utility in deciding issues is questionable. (P. S. Churchland, 1986, p. 333)

In the quoted passage, Churchland advises against free-usage of thought experiments. A thought experiment is a mental operation for discovering "something unknown, to test a hypothesis, or establish or illustrate some known truth" ("'experiment, n.,'" 2014). For that, thought-experiment is like testing a hypothesis by thinking alone. However, it does not entitle us to completely giving up the general principles of testing a hypothesis. This last point is the target of neurophilosophy about the legitimacy of thought experiments held by analytic philosophers.

2.3. The critics of neurophilosophy

Neurophilosophy have always been under a very strong fire by almost all schools of philosophy. I have above briefly evaluated the basic and the most common objections of neurophilosophy to the continental and analytic philosophy. In this part, I critically summarize the fundamental criticisms by both schools to neurophilosophy

2.3.1. Brain knowledge is irrelevant to the important philosophical problems

Neurosciences are, not only by philosophers but also by social scientists, usually seen as irrelevant to philosophical, social, or ethical problems. In the literature, thousands of articles can easily be found, which argue for the normative and the social irrelevance of neuroscience. To illustrate, there is an article titled "The

Normative Insignificance of Neuroscience" (Berker, 2009). There, Berker[4] claims that "although I am skeptical about the prospects for *deriving* normative implications from neural *facts* about how we happen to reach moral verdicts, in the article's final section I sketch a way in which neuroscience could play a more *indirect* role in *sculpting* our normative conclusions"[5] (Berker, 2009, p. 295). This award-winning article is an influential one. The problem with it is that the spirit of the passage I cited from it has always been defended by the Churchlands themselves. The Churchlands' approach to the possibility of deriving ethical norms from neural facts is crystal clear[6] (P. S. Churchland, 2011, p. 6). They say it is *not* possible (P. M. Churchland, 1998, p. 83). Their ideas about the plausibility of such kind of derivation are dead obvious. On the other hand, the Churchlands are the writers of the articles and books titled such as, "The significance of neuroscience for philosophy" (1988b), "Is Neuroscience Relevant to Philosophy?" (1990), "Toward a Cognitive Neurobiology of the Moral Virtues" (1998), "The impact of neuroscience on philosophy" (2008), "Roots of right and wrong" (2010), *Braintrust: What neuroscience tells us about morality* (2011). Then, who is against whom, and for what reasons? Let me look deep inside the debate centered around the normative or other kind of significance or of insignificance of neuroscience to philosophy in general, and morality in particular.

I have italicized four critical words in the cited passage written by Berker: deriving, facts, indirect, and sculpting. Now let me try to form three successive propositions using the three of those four words. There are neural *facts*. Neural facts

[4] Berker's article is primarily against the claims of Joshua D. Greene and Peter Singer, not specifically against neurophilosophy. I am using his article, since he has made lots of points which can also be directed against neurophilosophy. Yet, presumably the Churchlands do have very important differences from both Greene and Singer.

[5] All the italics in this quotation are mine.

[6] "So how did the idea 'you cannot derive an ought from an is' acquire philosophical standing as the 'old reliable' smackdown of a naturalistic approach to morality? First, a semantic clarification helps explain the history. Deriving a proposition in deductive logic strictly speaking requires a formally valid argument; that is, the conclusion must deductively follow from the premises, with no leeway, no mere high probability (e.g., 'All men are mortal, Socrates is a man, so Socrates is mortal'). Assuming the premises are true, the conclusion must be true. Strictly speaking, therefore, one cannot derive (in the sense of construct a formally valid argument for) a statement about what ought to be done from a set of facts about what is the case." (P. S. Churchland, 2011, p. 6)

can inform us about our morality. This neural informing may *indirectly sculpt* our normative conclusions. Of these four words *deriving* is missing in my reconstruction. My reconstruction is perfectly compatible with neurophilosophy. Neurophilosophy does not need using strong terms such as *deriving*, in the context of its naturalized ethics. Thus this sort of objections is misplaced.

2.3.2. The neuroscience is still too immature to have significant contributions to philosophical investigation

That neuroscience is not a well-established science is obvious. So are sociology and psychology. So what? There is no way of deriving an irrelevance thesis from that clear fact. If neurophilosophers were asserting that today's brain sciences could settle all the ancient philosophical problems and/or greatly mitigate the global social suffering, of course, the objection would have been to the point. However, it is not. According to the Churchlands, what neuroscience is doing and will do is, i) to illuminate philosophical problems, ii) to inform us about morality (1987), iii) to take a general view of the whole (by virtue of philosophy), iv) to correct and constrain philosophical ideas (1988), and v) to be unified with behavioral and social sciences so as to be molded within a unified theory of humans and the universe. Where is the grandiosely ambitious aim of deriving moral norms from neural facts, or deducing the conduct of behavior from neuroscientific findings? Whether these five claims will turn out to be true is out of the scope of this paper. The point is that the Churchlands do not argue for the things that they are being accused of arguing.

2.3.3. Philosophical study is also about the norms, but science is about the way the world is

Yes, philosophical study is also about the norms, and sciences do begin with the facts of the world. So what? That science is primarily concerned with the way the world is should not imply that it is the only thing that science can do. Self-evidently, science *cannot* save the world by itself. Neurophilosophers do not defend scientism at all. As I discussed above, for the Churchlands there is no such a miracle move

from neural facts to the conduct of behavior. First, neurophilosophers are skeptical about the social desirability of establishing universal moral norms or the rules of conduct (P. S. Churchland, 2011, pp. 165–186). One of the main intellectual parents of this philosophical school is American pragmatism, which is pragmatist as its name suggests. There is nothing Kantian in it (related to ethics). As a (neuro)pragmatist approach to the philosophy, neurophilosophy has nothing to do with finding categorical imperatives for human societies. It is a form of consequentialism. That is, it has no aim of setting the ethical agenda. Therefore, the critics of the objectors are led astray.

CHAPTER 3

NEUROPHILOSOPHY WITHIN NATURALISTIC TRADITION

Naturalism, like many other major philosophical traditions, is too hard to precisely define (Quine, 2004). Yet it can reasonably be claimed that the core of naturalism is to deny the supernatural. But more importantly, many philosophers intuitively believe that naturalist philosophers are science-friendly thinkers. But not all analytic philosophers have interest in science. Thus it now becomes clear that though the extensions of analytic philosophers and naturalist philosophers might be overlapping to some extent, they are not identical. The more interesting fact is that neurophilosophers are presumably forming a minority even within naturalist tradition. By neurophilosophy, I refer to the idea that in order to understand the mind, we should study nervous systems[7] (P. S. Churchland, 2007). The rest of naturalist philosophy can be divided into two groups: non-brain and anti-brain philosophers. By anti-brain naturalism, I mean the ones which assert that neuroscience is irrelevant to the most important and interesting philosophical problems. Then what are the substantial differences between these naturalists but non-neural philosophers and the neurophilosophers? Here, I examine these differences, and argue that anti-brain naturalism is in a full-blown crisis.

[7] "Neurophilosophy embraces the hypothesis that what we call 'the mind' is in fact a level of brain activity. A corollary of this hypothesis states that we can learn much about the reality of mental function by studying the brain at all levels of organization." (P. S. Churchland, 2007, p. 185)

First, I shall try to figure out the precise positioning of neurophilosophy within the naturalist philosophical tradition. Clearly neurophilosophy is a very strong version of naturalism inasmuch as it is neurally-minded, physicalist, and reductionist. To explore the exact relation between naturalism and neurophilosophy, I now briefly describe naturalism as I understand it.

At the outset, I must note that fixing a precise definition of naturalism is both improbable and also philosophically undesirable. Like many other major philosophical traditions, the extensions of naturalism gradually change as the rest of scientific and philosophical knowledge and debates, and also the social and political needs and considerations change. David Papineau writes that "[i]ts current usage derives from debates in America in the first half of the last century. […] These philosophers [the original naturalists, ST] aimed to ally philosophy more closely with science. They urged that reality is exhausted by nature, containing nothing 'supernatural', and that the scientific method should be used to investigate all areas of reality, including the 'human spirit" (Papineau, 2009). The content of this quotation nicely summarizes the naturalism question. There are six major points in Papineau's quotation. The first one is about the historical origin of current usage of the term 'naturalism'. The meaning of the term has been formed according to its place and year of birth. Accordingly, the meaning that I will critically examine here would be directly related to the scientific background of *our* age, to the *current* social debates, and to the hot topics in *today's* philosophy.

The social, scientific, and philosophical debates turning around the validity and implications of evolutionary theory were omnipresent during the formative years of American naturalism. On the other hand, today at least in the mainstream English-speaking world of philosophy, the evolutionary theory is widely assumed to be true. You can discuss about the importance of it for philosophy, or how to appropriately apply the theory to the social and philosophical problems. Also, you may develop an argument for or against a particular version of the theory. The significance of the increasingly accepted status of the evolutionary theory for the naturalism debate is that for the broadest sense of the term, naturalism is the denial of the existence of

super-natural things. It *was* a meaningful criterion in the dawn of the acceptance of Darwinian approach to the living things. However, today giving much credit to that criterion would be philosophically useless. We cannot make any productive distinctions between naturalist and non-naturalist philosophies via that criterion. Thus I offer that we should leave that out and utilize the stronger Quinean criterion of the acceptance of the continuity of science and philosophy. As Papineau puts it the first contemporary naturalist "philosophers aimed to ally philosophy more closely with science" (Papineau, 2009). What exactly this statement means or should mean will be one of the central points in this chapter. Let me explain the point in detail.

The two terms, 'philosophy' and 'science', are at the heart of the naturalism debate. Almost every naturalism expert would agree that delimiting naturalism is too hard. But for me the deeper and more important problem is how to define what science and philosophy is. To a first approximation, it can be reasonably claimed that science is the source of the most objective and reliable sort of knowledge as far as we have. On the other hand, there lies the so-called subjective character of philosophy. Obviously, philosophy, at least analytical and naturalistic philosophy, is done by virtue of argumentation. That is, it has a self-styled objectivity. However, the *self-styled* objectivity of philosophy is quite different from the full-blown objectivity of science. So we should ask in what respects their objectivity differs. First of all, scientific activity[8] is conducted through scientific methods, including but not limited to controlled experiments, systematic observations, forming testable hypotheses, and the inference to the best explanation. Forming testable hypotheses is presumably the core principle in scientific study. The controlled experiments are the most distant feature of sciences to philosophy. No school of philosophy does such kind of things[9]. The two methods which I have enlisted are very alien to

[8] The reader might reasonably object that since "the author keeps in mind all sciences, he cannot say that scientific activity includes these four methods". For example, historians do not conduct controlled experiments. In fact, it is *the point*.

[9] I am just trying to describe the current practices of philosophy. It is not the case that I claim philosophy *should be* that way. As the general orientation of my argument implies I anticipate that philosophy will be changing throughout the course of scientific development.

philosophical practice. So how do naturalists argue for the continuity of science and philosophy? Now let me answer that crucial question in a critical manner.

Up to now I have talked as if sciences were homogenous and collectively different from philosophy. It was just for convenience. The truth is that there is a bewildering variation among the methods and the reliability of the findings of existing sciences. Some sciences, such as clinical psychiatry are extremely distant from mainstream philosophy, whereas some others such as sociology, political science, or cultural studies are really close to some schools of philosophy. Some may object that these three sciences are not natural sciences, so they are not related to the naturalism debate, because naturalism is concerned about natural sciences. I reject that line of reasoning. I pursue naturalism without dogmas. Whether social or human sciences are genuine sciences or they be unified with or reduced to natural sciences are out of the scope of this chapter. It is discussed in the sixth chapter. However, there is a homogeneity problem in philosophical study as well. Philosophical practice is not uniform, as easily seen in the distinctions among continental, analytic, post-structural, and neurophilosophical philosophy. Considering these two practical observations simultaneously I conclude that a *simple* talk about the disunity or continuity of science and philosophy is good-for-nothing. So, what is the right question that should be asked to make sense of the relation between science and philosophy? I believe that the right question is whether or not the assumption that there are *necessary* disciplinary boundaries among academic disciplines is correct. My answer is strongly negative. I do not mean that there are not natural specializations among sciences. Of course there are. But we should not see these natural differentiations as predetermined boundaries. Rather we should follow the problems. Indeed, it is the way the sciences are. Just consider the names of some inter-disciplinary studies: biochemistry, biogeochemistry, translational biomedicine, biomedical engineering, computational neuroscience, molecular genetics, cognitive archeology, neuroanthropology, cognitive psychology, biopsychology, neuropsychology, cognitive neuroscience, and many others. It is true that we have yet to have a well-grounded science such as cultural biology or neuro-sociology. What I refer in the fifth chapter as cultural biology (CB) is, for the time being, a

claim about how to study human sciences, not a science as such. Establishing such interdisciplinary studies might seem too daunting, but it is the first step that is always the hardest. Rome was not built in a day, and such kind of sciences might be far from being established for the near future. However, all long journeys begin with the first step. Cultural neurophilosophy is not an exception.

Having said all these, it can be asked "if all sciences and philosophy are necessary for a complete understanding of humans and the universe, why should I argue *against* anti-brain naturalism and *for* neurophilosophy?" After all, neurophilosophy seems to *over*emphasize the role of neural sciences. This is true to a certain extent. But humans are higher animals, and their nervous systems are most central organs for their nature, personality, mind, and behavior. That is why I argue for neurophilosophy. But it is also true that the brain is the most social organ of human beings (Lende & Downey, 2012). Thus I offer a *cultural neurophilosophy* or perhaps "neurophilosophy encultured". As green apples are a subset of apples, cultural neurophilosophy, I believe, is to be regarded as a subset of neurophilosophy. That is, it is not a counter-argument against neurophilosophy. On the other hand, cultural neurophilosophy is directly against the anti-brain philosophy. Anti-brain philosophers of all flavors either consider culture as acting independently of our brains, or do not consider it at all. At this point, I should note that defining the term culture is too hard, and to a first approximation I can say that the social environment, including all distinctive ideas, behaviors, rules, political organization, economic relations, and material products of a nation or a social group form a particular culture. As it is increasingly accepted, social inputs might have direct and even profound effects on human brain development (Quartz & Sejnowski, 2003), and even at gene level (Robinson, Fernald, & Clayton, 2008). It suggests that studying brains is not only to understand how the brain structure and functioning constrain human behavior, and in turn human social lives, but also to understand how social influences are realized through our brains. So studying neurophilosophy does not mean to be reductionist, biologist, or neuro-manic. Then, it might be asked whether anti-brain philosophy is really targeting at so-called brain chauvinism, or its problem is with science itself. If the latter is the case, then anti-brain philosophy should show

the irrelevance of entire scientific enterprise to philosophical problems. However, it is obvious that if it is the case, many great philosophers such as Plato, Aristotle, Descartes, Kant, Hume, and Russell were in fact not doing philosophy at all. Defending such an extreme position should be avoided for all cost, I believe. Indeed I am not sure that we can find a single great philosopher who had no interest in the science of his or her time.

What I have told so far should *never* imply that philosophy should be replaced by sciences. Chemical events and processes are clearly physical phenomena, but chemistry as a science still survives. No one claims that chemistry is dead, or nor should its name be banned. Biology, as it means the science of living things and life, despite the fact that life has no intrinsic power and it emerged from non-living physical materials, is still a very useful scientific discipline contributing profoundly to our understanding of ourselves. That is, it is still alive. We have not eliminated the sciences of chemistry or biology. So there is no necessity to talk about the *elimination of philosophy or social sciences*. But, that philosophy shall survive does not mean that it will stay in the same way it has been. The evolutionary theory changed life sciences forever, quantum mechanics has altered the science of chemistry, and neurosciences and genetics profoundly improved the explanatory power of medical sciences. In parallel, philosophy will change as our scientific knowledge of us change. This transformation is not unique to our neural age. In fact, it is the way the world is. All the history of philosophy is full of changes of minor or major importance in the mainstream course of philosophy. We cannot talk about *the true way* of philosophical practice. Naturalism cannot stand as it had stood in its formative years. On the one hand, the findings of neural sciences should be increasingly incorporated into naturalist philosophy. On the other hand, brain-centered philosophy should be *encultured*.

What do I mean by these two suggestions? First, I mean that the work done by the Churchlands, although their works have contributed so much to the progress in

some fronts of naturalism, should be complemented by social scientific works[10] to have a more thorough understanding of the most interesting and exciting philosophical question such as consciousness and human nature. Secondly, I mean that naturalism without the study of nervous systems will be like studying medicine without using the concepts, methods, and tools of modern molecular genetics. In principle, the latter can be done. But it would be something very short of what can be currently done. Furthermore, in principle we can do academic philosophy as it was done in pre-Socratic era. Clearly, we do not desire such philosophy in our age, at least in scholarly works. Except post-modern philosophy journals, such texts arguably will not be accepted for scholarly publication. But still there is a significant resistance against utilizing neural findings in philosophical analyses, of which immediately below I shall try to figure out the reasons.

The implications of neurophilosophy or existing findings of brain sciences may or will be disturbing for both philosophers as a professional group, or people generally by shaking some well-established assumptions about human nature and behavior[11]. To illustrate, neurophilosophers tend to eliminate the *traditional* conceptions of free will and the self. However elimination of free will and the self, according to the Churchlands, is not equal to denying personal responsibility or moral attribution. Of course people should be punished or praised both legally and morally according to pre-specified and coded criteria related to their actions, be it allegedly-free or not. Also, that self as a unitary and conscious being should be eliminated does not mean that there is nothing unified, relatively persistent, and coherent about a person (for an opposite view see, Metzinger, 2009). Therefore, neurophilosophy is not a wholesale eliminativist. A better term for what the Churchlands defend is *revisionism*, because they argue that almost all philosophical and scientific concepts and accepted-beliefs or truths are subject to revision. But

[10] The social sciences that are mostly related to my project are these: economics, sociology, anthropology, history, archeology, public administration, and political science.

[11] Some examples: the existence of free will, self-control on human choices, the superiority of human beings among other living things, religious doctrines, and the reliability of introspections, and feelings.

sometimes revising a theory more and more will be counter-productive. In such cases, they believe that revision will be replaced by elimination. What should be eliminated at the time being is the so-called folk psychology. I have to remind you that folk psychology[12] is a theory, is a way of thinking, not a science in itself. The Churchlands do not offer the elimination of psychology as a scientific discipline (P. S. Churchland, 1988a), but offer that current psychology will be revised and unified with neurosciences so as to form a new future cognitive neuroscience[13]. Will the future cognitive science be more similar to today's psychology as a higher science or to neurosciences as a more basic science? Many of you, I guess, would think that the answer is obvious. Since the name of the philosophy of the Churchlands is neurophilosophy, you might think that the answer is neural sciences. That is not the case. It is not an issue to be settled in advance. We have to wait for the answer, because it is an empirical issue. Some philosophers believe that claiming about the empirical character of a question is question-begging. It is too strange and disturbing. Emphasizing the empirical aspect of a question does mean that there is no a priori answer to that question. That is, if there is no answer to a particular question *yet*, you should not behave *as if* you had an answer to that question. In short, neurophilosophy does not claim that psychology will certainly be eliminated, even that psychology may be reduced. One of the mostly ignored truths about the Churchlands is that they believe the future unification of psychology and neuroscience. In general, this kind of unifications requires the co-evolution of the theories and the sciences themselves. When theories or scientific disciplines co-evolve or evolve, by definition they get revised. This is why Patricia Churchland occasionally offered the following name for the approach they are holding: *the unificatory and revisionary materialism*.

To conclude, I should recapitulate the most important points about neurophilosophy. First, neurophilosophy is not eliminativist in the sense that philosophy, psychology, and social sciences are useless. Indeed, they are very useful. Secondly, neurophilosophy is not the philosophy of neurosciences. The philosophy

[12] A detailed discussion over eliminativism and folk psychology is given in the fourth chapter.

[13] But sometimes the Churchlands are really getting too close to psychological eliminativism.

of neurosciences is a sub-discipline within scholarly philosophy, whereas neurophilosophy is a *way of thinking*. Thirdly, it is not the case that neurophilosophy is wholesale reductionist[14]. Obviously the Churchlands claim that reductions are in general desirable in sciences. However, these reductions are not uniform. They may retain the old concepts and the theory, for example. Thus neurophilosophical reductions are not what many philosophers have in mind. More importantly, there is no principled reason for neurophilosopher to say that all higher level explanations will be reduced to lower level ones. It might be so or might not be so. We do not know the answer yet. Fourthly, neurophilosophy is not biologist in any sense. Biologism is a metaphysical ideology, whereas neurophilosophy is a philosophical analysis method. That is, neurophilosophy makes no a priori claim about the way the world is. Fifthly, there is a deep and wide gap and hostility between mainstream analytical philosophy and neurophilosophy, in contrast to what many philosophers think about them. Sixthly, neurophilosophy is not a cognitive science. As I said in the first recapitulation, neurophilosophy is a way of thinking and a distinct philosophical method. Cognitive science is not an approach, but is a branch of science. There are many approaches within cognitive sciences. You can do your cognitive science from neurophilosophical perspective if you like as Chomsky or Fodor does it. Seventhly, neurophilosophy is not scientistic. The Churchlands do not believe that science has a magic power to *completely* solve the problems of our world. The solution remains in the hands of people. Science may make the solution easier or harder. Lastly, neurophilosophy is radically pragmatist, because it is interested in the usefulness of the practical consequences. It is the most natural consequence of being naturalist.

[14] The problem of reductionism is discussed in Chapter 4.

CHAPTER 4

HOT TOPICS IN NEUROPHILOSOPHY

There are some hard topics concerning neurophilosophy. In this chapter, I focus on three of them. These three interconnected issues are needed to be clarified in order to have a correct understanding of neurophilosophical approach. When neurophilosophy is misunderstood, appreciating the point of cultural neurophilosophy becomes impossible. Let me explain why I have chosen the following three issues among many others: reductionism, eliminative materialism, and folk psychology. First, there are some positions in philosophy and social sciences that most scholars would like to be distant from. Early in the list is reductionism (Fodor, 1974, 1975; Jackson & Chalmers, 2001). Here I do not talk about the reduction of history and sociology to economics, or chemistry to physics. What I am more interested is the relationship between social sciences and humanities (including philosophy) and life sciences. For example, if you are blamed to be biological reductionist, probably the accusers would think that "you believe that the chief underlying reason for crimes is genetic". There is a point here. For instance, evolutionary psychology is a biological reductionist view, and some versions of that view really assert that inborn biases of humans are the major parameters in the formation of human behavior. The more radical version of this reductionist theory comes from the founder of sociobiology, the ancestor of evolutionary psychology,

Edward O. Wilson[15], who claims that, "Culture evolves in response to environmental and historical contingencies, as common sense suggests, but its trajectories are powerfully guided by the inborn biases of human nature" (Wilson, 1978, p. x). However, as I argue against this approach in Chapter 5, cultural neurophilosophy is distinct[16] from evolutionary psychology. As I said earlier in this work, if frameworks such as socio-biology or evolutionary psychology are arguably true, then defending such a view as cultural neurophilosophy, synthetizing social sciences with life sciences, would be untenable. The reason is that these sorts of biological reductionisms are already genetic determinisms. If genetic determinism is a tenable idea, then effects of culture should be minor. If they are minor effects, though these minor factors must be thoroughly studied, what should be done would not to synthetize social science with life sciences, but would be to getting improvements from the former to the latter. No need for a paradigm shift. However, in the fifth chapter I argue that they are not minor effects. Now let us see what reductionism is and is not.

4.1. The Neurophilosopher's type of reductionism

Reductionism is a hotly-debated topic not only in philosophy but also in all humanities and social sciences. There are many slightly or substantially different versions of reductionism in philosophy, especially in recent philosophy of mind, cognitive science, and psychology. In this section, I shall not try to give a comprehensive literature review of reductionism problem. What I am most interested is to make the necessary distinctions, according to the Churchlands, between the elimination of theories and reduction of theories. In addition, I show that

[15] Edward Wilson is one of the greatest zoologists of the second half of the last century. Since he is a system-founder, it is normal that his approach has evolved during the last fifty years. His last book, *The Social Conquest of Earth*, seems to distinguish him from both old-style sociobiology and evolutionary psychology (Wilson, 2013).

[16] At this very moment, I must note that some texts of the Churchlands seem closer to sociobiology. So it must always be remembered that the phrase cultural neurophilosophy is not just a broadening of neurophilosophy. It is also a revision of it. To put it differently, the Churchlands might disagree with the elements of my argument to varying degrees.

"reductionism is essentially about explanation" (P. S. Churchland, 2013, p. 263). The logical empiricists' conception of reduction is beyond the scope of this work. Also, though the question of reductionism is intimately interconnected with the problems of unification of sciences, the levels of analysis, multiple realizability, the nature of explanation, and how to delimit natural kinds, these elaborations shall not be made here (for an excellent historical review of reductionism and its links with unity of science, see Bechtel & Hamilton, 2007).

Defining reductionism[17] is too hard, but it can be said that there are levels of explanations in sciences, and theories at some higher levels of explanation can be somehow mapped onto lower levels of explanations. Since scientific explanations are expressed through hypotheses, theories, laws, or principles, higher ones are or can be mapped to lower hypotheses, theories, laws, or principles. Whether this mapping operation requires the eliminating or preserving of the reduced theory is one of the hottest buttons in philosophy of science. Patricia Churchland argues that:

> It also reveals that though reducing theories sometimes absorb the old theory as largely correct, more often the old theory is substantially modified and revised and sometimes it is replaced outright. How much of the old theory survives in the reducing theory depends on its empirical integrity and whether its basic categories are empirically sound. The reduction of psychology to neuroscience is considered in this light and it is suggested that psychology may be substantially revised or even replaced by a reduction to neuroscience (P. S. Churchland, 1982b, p. 1041).

Let me make the passage plain. Occasionally, reduced theories are largely incorrect. Therefore, they are substantially revised. Sometimes revision is not the best means to hold, so the reducing theory eliminates the old one. The criteria to decide between reducing and eliminating are empirical integrity and empirical soundness. The crucial example here is psychology. In that passage Churchland leaves the solution open-ended. According to her, it is possible (more accurately I

[17] The Churchlands appreciate that the historical versions and current connotations of 'reductionism' (P. S. Churchland, 1982b, p. 1041) and 'eliminative materialism' are trouble-making. By that, they accept the possibility of eliminating these two problematic terms, in an unknown future. But for the time being since there are no good-quality candidates for replacing them, so we should do with 'reductionism' and 'eliminativism'.

should say probable) that psychology will be substantially revised. Another prospect for psychology, she offers, is the elimination. This explicit statement of the possibility of the elimination of psychology is arguably the main source of confusion about neurophilosophy. The possibility of the outright elimination of psychology does not mean that you suggest that it should be eliminated or see it as a dead science. Now it is time to eliminate this folk understanding of eliminativism and reductionism. In the following, I aim to do that.

Unlike reductionism, eliminativism is not only about explanations and theories. It sometimes implies the elimination of hitherto existent categories, such as demonic possessions, phlogiston, or vital spirit. Occasionally, a science can be disappeared such as alchemy when its categories turn out not to be empirically sound and its methods become obsolete. On the other hand, in reductionism we are more interested in having more unified explanations through reductions. Elimination awaits when reductionism fails. Thus, if we successfully reduce the explanation for the nature of water to its biochemical composition, the category of water will probably be preserved. We are still free to talk about water as a liquid satisfying our thirst, and of which rivers are composed. To put it differently, water is still water.[18]

As Churchland explicitly states there, whether the replacement is to be done or not is an empirical problem. It follows from it that we cannot know a priori whether or not a theory, or a scientific discipline, will be dismissed from our scientific repertory. Unfortunately, this point is one of the most-widely misunderstandings about neurophilosophy. In fact, what she anticipates is the rise of *cognitive neuroscience* as the unification of psychology and neuroscience. Is cognitive neuroscience a psychological science or a neural science? It probably will be a psychoneural science. In the next two sections, I discuss a particular example related to eliminativism, namely the suggestion of folk psychology.

[18] It must be clear that many newer and basic-level explanations for a macro-phenomenon urge us to revise our old-conception of that phenomenon. The 'water' that biochemists are talking about differs from laypeople's 'water'. Even in biochemical level minutely specifying what water is rather difficult. Identifying water with H2O is nothing but a necessary idealization. It follows that many reductions also brings about revisions for our old-categories. Sometimes, these revisions become unsustainable. At that time, elimination is in order.

4.2. Eliminative materialism

Paul Churchland, in 1981, published an article titled “Eliminative Materialism and the Propositional Attitudes” (P. M. Churchland, 1981). It has become the most cited publication of both Churchlands. In fact, it is probably the most cited publication written in the field of neurophilosophy.

> Eliminative materialism is the thesis that our common-sense conception of psychological phenomena constitutes a radically false theory, a theory so fundamentally defective that both the principles and the ontology of that theory will eventually be displaced, rather than smoothly reduced, by completed neuroscience. Our mutual understanding and even our introspection may then be reconstituted within the conceptual framework of completed neuroscience, a theory we may expect to be more powerful by far than the common-sense psychology it displaces, and more substantially integrated within physical science generally. (P. M. Churchland, 1981, p. 67)

In the above quotation, it is completely clear that what eliminative materialism, at the first hand, is not about eliminating *psychology* as a science, but about displacing *our common-sense psychology* by completed neuroscience. The Churchlands view our commonsense psychology as a theory, not a scientific discipline or an *innate* way of thinking about human behaviors and minds. It is somehow learned culturally. Not only commonsensical, folk psychology hereafter, psychology but also intuitions, introspections, and feelings are learned. Thus they are historical and knowledge-dependent. As our knowledge increases, they change throughout history. As learned things can easily turn out to be false or faulty, they are also open to revision, reduction, or elimination. Reduction is a good operation when the reduced theory can be properly mapped onto the reducing theory. However, setting the precise criteria for proper mapping has not been worked in detail, up to now (McCauley, 2007, p. 112). In the above passage, Churchland argues that folk psychology is a radically false theory, and here a theory is an “acquired conceptual framework” (P. M. Churchland, 1981, p. 70). Now, let me briefly sketch what folk psychology is, and why Churchland believes that it is *radically* false.

4.3. Folk Psychology

Since the debate over the preservation or elimination of the so-called folk psychology is perhaps the most objected element in the Churchlands' ideas, it will be useful to analyze it in detail here. The following quotation is a bit long but it excellently summarizes the domain and the basic claims of folk psychology:

> So far I have referred to our "commonsense framework for understanding mental states and processes" without being very precise about what is meant. For brevity's sake, I shall begin by replacing that long-winded description with a shorter label, namely "folk psychology". Now by folk psychology I mean that rough-hewn set of concepts, generalizations, and rules of thumb we all standardly use in explaining and predicting human behavior. Folk psychology is commonsense psychology -the psychological lore in virtue of which we explain behavior as the outcome of beliefs, desires, perceptions, expectations, goals, sensations, and so forth. It is a theory whose generalizations connect mental states to other mental states, to perceptions, and to actions. These homey generalizations are what provide the characterization of the mental states and processes referred to; they are what delimit the "facts" of mental life and define the explananda. Folk psychology is "intuitive psychology," and it shapes our conceptions of ourselves. As philosophers have analyzed it, the preeminent elements in folk psychological explanations of behavior include the concepts of belief and desire. Other elements will of course figure in, but these two are crucial and indispensable. (P. S. Churchland, 1986, p. 299)

To put it plainly and shortly, folk psychology is a conceptual framework. It explains and predicts human behavior through mental states such as beliefs and desires. But it is not precise in any sense. It consists in concepts, generalized ideas, and rough rules which are applied by people in their daily human affairs. The basic units of causal powers are belief and desire. They are the power engine of human behavior. To survive and navigate through our social ecology, it is clear that we should predict what people will do, and prediction would be more accurate when you have a fairly enough account of the would-be predicted behavior. Indeed, the Churchlands completely agree that human beings must predict the social, personal, and physical events which will probably occur in an immediate or distant future. Otherwise survival would be impossible. Even lower animals regularly do these kinds of predictions. The distinction between the Churchlands and the defenders of

the ontological preservation of folk psychology is that the former argues that the folk psychological explanations are not the true account of human behavior. Furthermore, folk psychology, neurophilosophers argue, is not only a false account of human behaviors, but also a profoundly misleading framework that should be eliminated without reducing to a lower-level theory. The critics argue that folk psychology might not be a perfect account of human behavior but still worth holding.

CHAPTER 5

FROM GENES TO SOCIETY: HUMAN NATURE

In this chapter, I aim to explicate the neurophilosophical perspective on human nature. The Churchlands had not made any attempt at introducing their approach at length to the problem of human nature until the publication of *Braintrust* in 2011. In fact, that book too is not directly about human nature, but has a chapter on the relation among *genes, brains, and behavior* (P. S. Churchland, 2011, Chapter 5). There Patricia Churchland argues that the relations among genes, brains, environment, and behavior are bewilderingly complex. But she adds that:

> Despair is not the lesson of this bewildering complexity. Nor is the lesson that genes do not affect behavior. They do, of course, and heritability studies in populations confirm that some traits are highly heritable. Height, for example, is strongly heritable, as are temperamental profiles (e.g., introversion, extroversion, and probably degrees of sociability), and the susceptibility to schizophrenia or alcoholism. The point is that if a certain form of cooperation, such as making alarm calls when a predator appears, has a genetic basis, it is likely to be related to the expression of many genes, and their expression may be linked to events in the environment. (P. S. Churchland, 2011, p. 102)

First of all, it should be noted that Churchland, in the above passage, states that genes affect behavior, and some traits are highly heritable, possibly including temperamental profiles. Furthermore, she believes that the expressions of genes are linked to environmental events. Thus there is networking among genes, brains, behavior, and environment. That is, they are interconnected as components in a large

system of world-and-me. It means that environment has a role in shaping human behavior. Allowing environmental inputs in the formation of behavior prevents one from being a defender of biologism. Biologism is the interpretation of human behavior from a purely biological viewpoint. Biologism is one of the frequent accusations made against neurophilosophy, besides of scientism and positivism. The distance between neurophilosophy and biologism can be seen in the following passage:

> As Frances Champagne and Michael Meaney have shown, licking and grooming by the mother rodent has effects on the subsequent social behavior of the babies; pups who get plenty of licking and grooming are more socially adept than pups who do not. Genes are part of a flexible, interactive network that includes other genes, the body, the brain, and the environment (P. S. Churchland, 2011, p. 102).

Licking and grooming by the mother rodent is a familial input affecting the subsequent social behavior of the babies. Tons of other environmental effects on behavior might be listed, but the point is that neurophilosophy is an *interactionist* perspective on human behavior. At this point, I must make a necessary distinction. That neurophilosophy or cultural biology is interested in social factors does not mean that they have a deep interest in political structure, social history, or economic relations. The minimal sense that biologically-minded thinkers attribute to social factors creates a huge problem. Even the relation between the child and the mother is regarded social. Normally in standard sociology or history, social relations are much larger-scaled. It includes the relations among ethnic groups, classes, interest groups, races, genders, age-groups, or nations. What is missing both in cultural biology and neurophilosophy is the large-scale social relations, economic structures and history. Here I do not intend to provide a *finished* version of how to incorporate these macro-social sciences into brain and behavioral sciences. What I offer is to discuss one concrete example of the supreme importance to explore the prospects of such a project. This is the question of human nature.

Human nature is a biting problem. The views on human nature could be divided countless different ways. So the distinction that I shall make is personal. For my present purposes, comparing and contrasting the theories that are seemingly very

close, but actually are not, would be more meaningful. The reason is that this study aims to discard the bogeyman[19] about neurophilosophy, to introduce cultural biology, and offer an *extended synthesis* of those two under the title of cultural neurophilosophy. Then it is wise to distinguish those two from the seemingly parallel views, such as evolutionary psychology. Otherwise, neurophilosophy would remain surrounded by a thick layer of mist. A mist composed of ignorance, misinformation, prejudice, contempt, and indifference regarding most biting problems of our planet. In the following subsections I shall concentrate on figuring out the distinctions between cultural biology and evolutionary psychology.

Approaching the problem of human universals is presumably the central issue in the debate over human nature. There are few universal human needs, which cultural biology called human core, such as belonging to a group or attachment to the loved ones. For cultural biologists the rest of our so-called universal behavioral, cognitive, or personality traits are the result of the very deep, extraordinarily rich and powerful interconnection "between our genes and our changing and uncertain world of culture" so as to satisfy universal human needs. In contrast, the evolutionary psychologist's conception of human nature is largely unmodifiable across differentiating environments. Thus these two seemingly similar ideas about human behaviors, mind, and personality are in fact profoundly distinct. Whereas, the notion of human core is suggested, by cultural biology, to be profoundly influenced by environmental conditions, evolutionary psychology presumes that environmental contribution to human behavior, mind, and personality is either minor or just a reflection of our genes and cognitive architecture, hence could be largely predicted regardless of environmental conditions. On the one hand, cultural biology conceives genes as tools that experience utilizes to readjust the brain's response to continuously changing demands in constantly changing environments in which modern humans have, and our ancestors had, been living. On the other hand, evolutionary psychology

[19] Patricia Smith Churchland has made countless attempts to correct the widely-held bogeyman about neurophilosophy for the last three decades. Her attempts are apparently unsuccessful. There may be good reasons for her attempts being not successful. But these potential reasons are beyond the scope of my work.

conceives environmental effects as tools that genes use to unfold their innate information. Here I argue that the conception of human core is much more plausible than the conception of human nature both philosophically and scientifically due to three interrelated but rather distinct reasons.

5.1. The introduction of the parties and the social implications of the problem

The very existence of a human nature is still being hotly debated among philosophers, laypeople, and scientists (Henrich, Heine, & Norenzayan, 2010; Machery, 2008). The debate concerns the alleged human universals (Brown, 1991, esp. ch. 7; Haidt & Joseph, 2011), genetic determinism (Pinker, 2003, ch. 10; Prinz, 2012, pp. 17–51; Wilson, 1978, ch. 2), evolutionary adaptations (Wright, 1994, pp. 26–28), and the allegedly chronic violence found in tribal human groups (Chagnon, 1997, ch. 6) . The atypical critics of the common conceptions of human nature argue that so-called universals are either not actually universal in the sense of being omnipresent, but just relatively common or, even if they were universal, they might not have been genetically predetermined (e.g. Jasny, Kelner, & Pennisi, 2008; Suhler & Churchland, 2011). Here I argue that the evidence at hand strongly suggests that the notion of *human core* (Quartz & Sejnowski, 2003), suggested by cultural biology[20] (CB), is both much more compatible with the current state of behavioral and brain sciences and largely supported by the social sciences than a timeless and unchanging conception of human psychological traits, even though this timeless and unchanging character of human nature, by evolutionary psychology (EP), is not meant to be absolutely fixed at all levels and dimensions of human personality.

[20] By cultural biology, I primarily refer to the approach detailed in Quartz and Sejnowski (2003). However, neuroconstructivism (Mareschal, Johnson, Sirois, Spratling, & Thomas, Michael S C Westermann, 2007; Westermann et al., 2007), Parallel Distributed Processing approach (Rumelhart, McClelland, & Group, 1986), constructive learning (Quartz, 1999), probabilistic conception of epigenesis (Gottlieb, 2001, p. 160), neurophilosophical perspective (P. S. Churchland, 1992, 2002, 2011, 2013), and many other developmental (Flynn, Laland, Kendal, & Kendal, 2013) and epigenetic views (Champagne & Meaney, 2001; Jablonka & Lamb, 2006; Lamm & Jablonka, 2008) are within the same range against evolutionary psychology. There are some differences in emphasis, level of analysis and tools, but all of them make parallel attacks to the fundamental principles and characteristic claims of EP.

The debate around the existence and the character of human nature is massively consequential for social life because most social policies and proposed legal regulations that are evaluated by both laypeople and the decision-makers largely depend on one's conception of who she is. For example, if you believe that criminal acts are strongly correlated or caused by our genes, you are likely to offer some drugs to rehabilitate criminals (Pinker, 2003, p. 371) or hard punishments so as to keep them isolated from the mentally healthy and socially fit portion of society. On the other hand, if you are vigorously defending that culture has a profound influence even on the microstructure of human brain and its development (Quartz & Sejnowski, 2003), you are considerably more likely to emphasize social learning, educating, restructuring "our social context", and redesigning "our everyday tasks and tools" (Quartz & Sejnowski, 2003, p. 269). The implementation of one of these options determines how our taxes will appropriately be distributed among several social urgencies.

5.2. Evolutionary psychology: safeguarding the concept of a universal human nature

"The concept of a universal human nature, based on a species-typical collection of complex psychological adaptations, is defended as valid (…)" by the founders of EP (Tooby & Cosmides, 1990, p. 17). That is, there are something universal throughout cultures, time, and places about human mind. These universals form, basically, a large set of special-purpose and domain-specific complex mental mechanisms (Tooby & Cosmides, 1989). The fundamental truth about human beings, according to them, is that "(…) our functional, species-typical design is the organized product of ancestral natural selection" (Tooby, Cosmides, & Barrett, 2005, p. 305). Ancestral natural selection is the selection occurred in the environment of evolutionary adaptedness, which is "the series of ancestral environments/selection pressures that sculpted the design of an adaptation" (Cosmides & Tooby, 2013, p. 203). As Durrant and Haig (2001, p. 358) state, "The concern of critics [of EP] here does not rest on doubts about evolution or the importance of natural selection in shaping biological traits". However, perhaps the most basic thing about EP is that it

is based on a peculiar understanding of natural selection, and its strong emphasis on the centrality of natural selection upon the evolutionary processes[21] (see Silvers, 2007). Depending on whom we are talking about, an evolutionary psychologist might conceive of natural selection as operating on distinct genes, individual genomes, on the level of populations, and individuals. Some argue the unit is all kinds of behavior. On the other hand, some claim only a limited number of basic personality traits such as big five personality traits have been selected universally. Hence the other highly variable psychological phenomena are by-products of evolution, due either to genetic drift or to sexual recombination (Tooby & Cosmides, 1990). This astonishing variation in EP should not be blurring the distinction between EP and CB. East is East and West is West and never the twain shall meet. We should separate the sheep from the goats in EP. After having separated those, in the next section, I recombine the strongest arguments for EP so as to make a fairly coherent and persuasive account than any of the present particular positions in EP[22].

5.3. Theoretical vs. practical evolutionary psychology

Up to this point, I have been talking as if all evolutionary psychologists made the same *basic* claims. In fact, figuring out what the basic claims of a framework is not easy; perhaps because there are no necessary and sufficient conditions for a framework. Yet related to our nature, one thing that should be common is that "… [T]he complex adaptations that compose the human cognitive architecture must be human universal …" (Cosmides & Tooby, 1999, p. 2). On the other hand, evolutionary psychologists, in principle, accept that there is an important amount of

[21] I am critical about EP's understanding of the role of natural selection. But I will not have a discussion on alternative accounts of evolutionary mechanisms, such as non-genetic inheritance, niche construction or many others. My reason is the following. That kind of work is already being done. What is missing is the social side of the issue. But these social factors, as I have discussed in the first pages of Chapter 5 and footnote 10, are much more comprehensive than the ones developmentalists, interactionists, and constructivists seem to think.

[22] There are many alternative proposals to evolutionary psychology. Here I shall not present and discuss them, not because they are not good enough, but since I put cultural biology under the microscope as a representative alternative to EP, not *the* alternative. That is to say, you can regard cultural biology as a suitable example of many akin views, which I have listed in the seventeenth footnote.

human behavioral and mental trait variation. Furthermore they "do not maintain that the realized architecture of the human mind is immune to modification" (Cosmides & Tooby, 1999, p. 2). Believe nothing of what you hear, and only half of what you see. Not being immune just means that human mind can be affected by a given influence, or it is responsive to something. Well, the break point of CB and EP is not that one subscribes to the responsiveness of human brain, mind, or behavioral traits, and the other denies it. That is not the case. In theory, both of them takes for granted that, to a certain degree, human mind, brain, personality, and behavior are responsive to something other than our individual genomes. In fact, most biologically-informed human theories regard themselves as interactionist (Horvath, 2000). It is also valid for the idea that there is something relatively stable within our species, such as human nature or human core. There appears no *categorical* distinction between them about the existence of a *statistically* significant correlation between genetic variability and human behavioral or personality variation. In theory there is no difference between theory and practice. In practice there is. By theoretical, I mean the eclectic statements of evolutionary psychologists, such as "the whole point of human brain is behavioral flexibility" (Wright, 1994, p. 243). It is an eclectic recognition since the whole point of EP is its claim that there are some universal and largely unmodifiable behavioral strategies in humans, though for them an individual can hold a couple of different strategies for a distinct context.

My point is that when the particular remarks made by evolutionary psychologists are put together, one can easily get the impression that the apparent gap between EP and CB is not categorical, so that they can find a middle ground. That is not the case. First of all, the deep differences between their very understanding of what a gene is, assigned role of environment in human psychology, basic characterization of the climatic and social history of our world, default interpretation of brain imaging studies, conflicting views on how complex properties could have emerged (McClelland, 2010; McClelland et al., 2010; Westermann et al., 2007), given order of priority to figure out the proximate mechanisms, understanding of specialization vs modularity, hidden assumptions underlying their own philosophy of science, and the role that natural selection played in our evolutionary history

(Quartz et al., 1997), collectively form an intellectual *Grand Canyon* between EP and CB.

5.4. Evolutionary psychology at work

Evolutionary psychologists make hypotheses about "many nontraditional topics: the cognitive processors that govern cooperation, sexual attraction, jealousy, […] the aesthetic preferences that govern our appreciation of the natural endowment, coalitional aggression […] and so on." (Tooby & Cosmides, 1997). Another long list consists of the followings:

> "internal representations of trajectories; computational specializations for reasoning about danger, social exchanges, and threats; female advantage in the incidental learning of the spatial locations of objects; the frequency format of probabilistic reasoning representations; the decision rules governing risk aversion and its absence; universal mate selection criteria and standards of beauty; eye direction detection and its relationship to theory of mind; principles of generalizations; life history shifts in aggression and parenting decisions; social memory; reasoning about groups and coalitions; the organization of jealousy, and scores of other topics" (Cosmides & Tooby, 1999, p. 2).

There are several and sometimes conflicting hypotheses for a given psychological phenomenon within EP. To illustrate, they suggested at least seven evolutionary hypotheses to explain human aggression: "co-opt the resources of others, […] negotiate status and power hierarchies, […] deter long-term mates from sexual infidelity, reduce resources expanded on unrelated children" (Buss & Shackelford, 1997, p. 605). The debates around these kinds of lists and their internal or external validity are sometimes called "questions at the level of theory" as distinct from "the questions at the level of metatheory" (Jong & Steen, 1998, p. 185). The distinction made by Jong and Steen (1998) is parallel, despite not being the same, with my theoretical and practical distinctions. These and other long lists of alleged modular, and typically innate, psychological phenomena presume that there were recurrent selective forces acting upon our hominid ancestors. If this were the case, there should have been both a very long (maybe ten million years), ecologically and

socially stable time, for constant selective forces could operate through, and a relatively short period (maybe just the last one million years till today) through which a perfect equilibrium has emerged between our ancestors and the rest of the universe so that evolutionary forces can take a vacation. Quartz and Sejnowski persuasively argue that "[O]ur ancestors lived not in a single, static environment, but in a world of intense variability" (2003, pp. 76–79). This is one of the chief underlying reasons for CB to put the behavioral and personality flexibility of human beings at the center of their approach. They, hence, claim that "survival of the fittest meant survival of the most flexible" (Quartz & Sejnowski, 2003, p. 79). Under this degree of environmental variation and human flexibility, the very basic assumption of EP that there is a set of evolved modules, collectively forming our personality, which evolved under constant selective forces, corresponding to recurrent physical and social problems encountered by our hominid ancestors, is not plausible. I should note that of course there are invariant problems that our hominid ancestors encountered during millions of years, such as caring for children, belonging to a group, and self-preservation. For these reasons, we have a *human core* present for each member of our species. Yet this human core is greatly flexible, developmentally constrained but not innately predetermined, and richly interacted with environmental inputs as to form our temperament, largely stable part of personality.

5.5. Cultural biology: the science of human core

Although in some parts of the world it is still a widely-held idea in the social sciences, the claim that our biology is *irrelevant* to our social behaviors and to our social structures has become much weaker than fifty years ago[23]. It turned out to be true that biology has its own constrains, thus it is crucially relevant. We are not in the age of believing the unbounded modifiability of the shared human behavioral patterns, such as sharing, helping to strangers, self-sacrificing, honesty, and virtues (Quartz & Sejnowski, 2003; Westermann et al., 2007). However, bounded is

[23] This work is written here, in Ankara, Turkey. In this country, the vast majority of social scientists still insist that life sciences are almost completely irrelevant to social phenomena.

bounded, not meant to be fixed, or to be unchangeable. As Steven Quartz and Terrence Sejnowski (2003, p. 46) state, despite the fact that a particular car cannot exceed a specific speed, it does not mean that its speed is fixed and inflexible. I think it is a quite, but not perfectly, useful example to discuss about the malleability of human behaviors. The same car can go as slow as 10 mph or as fast as 150 mph, but not all cars can do that. Depending on your engine, the weather, the weight carried, the fuel used, the state of the wheels, and the type of the road make more or less contributions to the highest achievable speed of that car. At a particular moment, the present speed of this car might also depend on where you are trying to go, the available time you have, your reluctance or willingness to go there, the fuel quantity you prefer to use, the local legal regulations, the surrounding scene to watch, and so on and so forth.

Except the constraints of the materials used in your engine[24] and how are they wired together, all the above parameters are susceptible to be impoverished or improved to varying degrees at different time-scales. However, the real problem is not about whether that car can reach 500 mph or not. There is no distinction between EP and CB about that point. The answer is a big no for two parties. The point is that EP presumes that there is a normal range of speed rate we encountered under so-called normal circumstances, let us say between 70 and 120 mph, and the speed variation are mainly depends on our individual personalities, which in turn is largely determined by our genes. On the other hand, CB tries to show that the variation is much larger than thought by EP, and not *mainly* due to genetic differences among people, but due to an irreducible complex interaction at all levels of molecular, cellular, and cognitive organization (Han et al., 2013; Laland, Odling-Smee, & Myles, 2010; Westermann et al., 2007). Now, I proceed to show the correspondences between the car example and the relation between our individual genome and human behavior.

[24] Obviously, you can play with your engine to go faster. In parallel, genetic engineering can make sophisticated operations on the genes of plants and animals so as to alter their physical properties radically. However, the analogy is made between genome and the engine, since the car example is highly illuminating, and the engine is relatively more stable element of your course of driving.

Even the very founders of sociobiology accept that the final state of human behaviors is not thoroughly predetermined by our individual genomes (Buss, 2001; Wilson, 1978). Instead of accepting such sort of too imprecise and abstract role assigned to social factors, cultural biology reminds us that there are levels of interactions ranging from gene-to-gene (Greenspan, 2001) to the level of social experience influencing gene expression (Robinson et al., 2008), and also "through all levels of description" (Mareschal, 2011, p. 169). Correspondingly, there are levels of interaction in our car and interactions between our car and the surrounding conditions such as the road condition, the weather, and the needs, desires, and necessities that constrain the drivers' decision for speed. An individual navigates through a physical and social ecology so as to satisfy lots of constraints (P. S. Churchland, 2011, p. 7). These constraints might include finding food, social acceptance, belonging to a group, defending yourself and your loved ones, conforming to social norms to a great extent, housing, heating, prestige, the physical threats, accessing to sex and reproduction, sharing resources, not to be exploited, preserving social stability, not to be ostracized, having trustable associates, and many others. The point is that people widely differ on their relation to those constraints. If the decision-making is really a constraint-satisfaction process, the above constraints should be thought together with our genetic constraints. The biological constraints might include our individual DNA sequences; the cytoplasm found in zygote, the spontaneous processes yet-to-be discovered, chancy chemical events, prenatal and early life exposure to stressful life events (Champagne & Meaney, 2001; M. M. Clark & Galef, 1995; Rai et al., 2012), and lots of other things. It is true that none of the things I have listed, up to now, do not entail that evolutionary psychologists' style genetic determinism is untenable, but they make their claims less likely to be true, because, in order to reasonably defend a genetic determinist position, one should show that genes contribute to human behavior more than non-genetic parameters[25].

[25] An immediate objection might be that "here is again good-old-fashioned behavior genetics who thought they can divide behavior statistically in percentages of geneticists and environmental factors". It is not the case. If dividing behavior into percentages of genetic and environmental components were

5.6. Is genetic determinism a tenable position?

"In the nucleus, the DNA code is 'transcribed', or copied, into a messenger RNA (mRNA) molecule. In the cytoplasm, the mRNA code is 'translated' into amino acids" (Cold Spring Harbor Laboratory, 2002b). Roughly, "a gene is a discrete[26] sequence of DNA nucleotides" (Cold Spring Harbor Laboratory, 2002a). Proteins are basically composed of amino acids, which are the products of the gene[27] expression. Nervous systems consist of neurons, neural cells, of which the most important component is protein structures, i.e. neurochemicals, enzymes, and receptors. All human behaviors are mediated by our nervous systems, and all decisions are made through our brains (P. S. Churchland, 2002, 2013). Nervous systems, as a response to the changing environment readjust itself constantly. The behaviors are the results of these neural changes. This is the most general and rough outline of the way from DNA to behaviors. The highest level of interaction is between our brains and internal and outside stimuli (Jasny et al., 2008). In contrast, EP practically assumes that functional analysis is sufficient to understand human psychology, the detailed study of brain biology is not necessary. Thus, cultural biologists claim that EP is "a little more than creative storytelling" (Quartz & Sejnowski, 2003, pp. 15–6). Moreover, a typical evolutionary psychologist claims all these very complex interactions, occurring at all levels of organism and society, can be anticipated, to an important extent, by our genetic makeup. For them even our cultural practices are the reflections of human nature[28]-[29] (Tooby & Cosmides,

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meaningful, this ratio still would not have given priority to the genes. The reason is that the arguments come from the high percentage found by behavior genetics do not show that genetic determinism is the case, because the percentage given are still at most 0.50 on average.

[26] For an alternative definition of a gene see, (Gerstein et al., 2007, p. 669) : "A gene is a union of genomic sequences encoding a coherent set of potentially overlapping functional products."

[27] Defining what a gene turns out to be extremely difficult (see, e.g., Abend, 2012; Gerstein et al., 2007; Greenspan, 2001, 2004, 2009; Griffiths & Stotz, 2006; Lewontin, 2011; Pearson, 2006).

[28] To be precise, Edward O Wilson claims that, "Culture evolves in response to environmental and historical contingencies, as common sense suggests, but its trajectories are powerfully guided by the inborn biases of human nature" (Wilson, 1978, p. x).

[29] This is why some evolutionary psychologists claim that, "[…] The large segments of sociocultural anthropology are dead as a science" (Tooby et al., 2005, p. 307, footnote 2).

1989), which is encoded in our genes, even though they have repeatedly stated that the relation between our genes, mind, and culture is a co-evolutionary process (Lumsden & Wilson, 1981). As defenders of EP they *declare themselves* as truly interactionists. I would love to agree with evolutionary psychologists if the claim that our psychological architecture is largely predictable, without a detailed knowledge of the current and particular environmental conditions surrounding individuals, is persuasively supported by careful experiments, systematic observations, and compatible with the rest of our scientific knowledge. It would mean that genetic determinism be a tenable position. However, as I shall continue to argue, that is not the case.

The scientific literature giving the best support to genetic determinism[30] comes from quantitative behavior genetics (Plomin & Daniels, 2010), the meta-analysis of cultural anthropological studies on human universals (Brown, 1991), and the comparative studies of animals (Trivers, 1971, 1972). For that reason, I discuss these three areas successively. I start with the genetic studies of animal behavior. Behavior genetics is the field where the genetic research strategies are applied to the study of behavior (Plomin, DeFries, McClearn, & McGuffin, 2008, p. xvii). It is typically about calculating the correlation between the genetic variability and behavioral variability. Generally, the estimated quantity, i.e. the heritability factor, is three-parted: the genetic component, the shared environmental component, and the unique environmental one. The second and the third components can also be grouped as *the* environmental component. If the specific environment is changed, then the calculated heritability would change. Now I go on to discuss the major problems of behavior genetics.

There is a series of great methodological problems with the current state of behavior genetics (Pinker, 2003, pp. 374–375). First of all, typically these studies

[30] In fact, these three areas of study are usually presented as indirect evidence in favor of genetic determinism. But do we have any direct evidence for it? As far as I know, the answer is negative. The problem is that the second and the third research areas I quoted are not genetic studies at all. Therefore, if they mean reliable evidence, they would give some additional support to the genetic determinist position.

make measurements in a certain environment. On the other hand, I think one of the most important comparisons will be the behavioral and genetic variability between a foraging human population and a Western city-dwelling society, because human nature problem is also about its implications on the relationship between our established, or emerged, social institutions, cultural practices and our so-called human universals. This kind of research is yet to be within the scope of behavioral genetics. It is so important because the thing that makes the debate around human nature excessively hot is that it might say something to us about whether social reforms could make a significant change in our very common, but socially undesirable, human behaviors, such as homicide, suicide, rape, theft, bodily harm, mobbing, gossip, war, racism, etc. By social reform, I mean both the legal restructuring, i.e. shifting between different legal systems, and socioeconomic structural changes, e.g. the status of property rights. If a study is done within a specific environment, there will be no interesting conclusion about this central social concern.

The second major problem with behavioral genetics is related with averaging the obtained data. Behavioral geneticists typically assume that many personality traits, but not all of them (Bergen, Gardner, & Kendler, 2007), are largely stable across lifespan (Cobb-Clark & Schurer, 2012). Cultural biologists, on the other hand, argue that "human personality is an open program" (Quartz & Sejnowski, 2003, p. 130). If human major personality traits, such as "big five personality traits", were largely unmodifiable, then data averaging would be reasonable. It is about the lifespan changes in the estimated heritability factors (Klimstra, Bleidorn, Asendorpf, van Aken, & Denissen, 2013). That is, change the average age of the sample and you get a different score. Regardless of its degree, it exists. Then either this degree of change is minor, hence averaging heritability scores across ages is reasonable, or it is major, hence averaging would be misleading. The second type of averaging is much more annoying. It is the averaging of the estimated scores of distinct traits. By this operation an overall heritability factor of human personality traits are estimated to be around 0.5, more accurately between 0.25 and 0.75 (Pinker, 2003, p. 374). Accordingly, scientists who use five-factors model as a research paradigm believes

that averaging the data is plausible, but the latter claims averaging is getting rid of all flexibility in human personality. No flexibility, no human. According to some, the very core of human intelligence (McClelland, 2009) and personality (Quartz & Sejnowski, 2003, pp. 81&130), is flexibility and open-endedness. To put it plainly, assuming the largely unmodifiability of human personality, which comes with making not-so-clear definition of traits, and trying to standardly measure variation in human personality traits, finally taking the average of data points is the worst way of figuring out human personality traits variation. After all, correlating genetic variability with behavioral variability is also a great problem, since it is just valid for a specific environment. It is this correlation that called for heritability factor, which as I explained above, why it is not context-independent.

5.7. Caveats

Here I argued that the methodological approaches, practical analyses, and empirical claims of both the founders and advertisers of evolutionary psychology are either weak or simply implausible. In contrast, the theoretical principles, practical examples, and tentative conclusions of cultural biology, though being in its infancy, are more plausible than EP, and also more promising. Yet the debate is far from being closed. For cultural biology to prove itself, it should find much more concrete and well-established examples that strongly and persuasively suggest that culture, including all environmental inputs, that is not innately found in DNA sequences, has profound influences on who we are. One day in the future, I hope we will have a couple of dozens of ancient and intact DNA remains from our hominid ancestors, a relatively complete account of the life histories of particular human beings, the twin studies conducted not within Northern Europa, but across tribal societies and the industrialized ones, an established large-scale brain theory, superb brain imaging devices, an encyclopedia of human gene expression, a thorough documentation of cultural and behavioral variation within and between primate species, and lastly a perfect account of the complex relationships between gene, mind, and behavior. Then we will see which hypothesis on human psychology is really the better one.

CHAPTER 6

CULTURE AND NEUROPHILOSOPHY

The central claim of neurophilosophy is that we should study nervous systems to understand human behavior and cognition. But neurophilosophers also defend the central role of cultural practices in human behavior (P. S. Churchland, 1986, pp. 9–10, 2011, p. 10). Are these claims really compatible? In this chapter, I argue that the answer is affirmative in the following way. As said in the previous chapters, studying nervous systems naturally enforces us to have a genuine interest in social sciences. The reason is that the following assertion, "I am who I am because my brain is what it is" (P. S. Churchland, 2013, p. 11) is in accord with all levels of social explanations. Let me explain what I mean. Culture and neuroscience are two interweaved parts of the story:

> There are two parts to the story. One is brief and contains the basic background logic. I doubt this is the sum and substance of the answer. But it is how, from the perspective of hindsight, I give a meaningful organization to the more indirect and vastly messier part of the answer. The messy part has to do with slow cognition, temperament, growing up, learning, role models, life experiences, successes, failures, and luck. The background logic is not unimportant here, but it is in mixed company. (P. S. Churchland, 2013, p. 21)

Cultural neurophilosophy is the messy part of the story. Systematically explaining cultural affairs presents numerous difficulties. Cultural practices of the world's human populations display bewildering variety. Most philosophers and life

scientists get confused when they are confronted with this astonishing variety. But these cultural and social practices form a matrix that shapes human nature: "We live in a matrix of social practices, practices that shape our expectations, our beliefs, our emotions, and our behavior—even our gut reactions. Our personalities and temperaments are bent and formed within the scaffolding of social reality" (P. S. Churchland, 2013, p. 150). On the other hand, human nature is said to shape our cultures and societies. The most important fact about our species is that it is an *intensely* social species. For that reason, culture and sociality are our second nature, a nature that regulates human behavior, and inter-personal interactions: "Aristotle, along with many thinkers after him, recognized the importance of social practices and institutional norms in regulating behavior and providing the scaffolding for many interactions, thereby undergirding stability and harmony," (P. S. Churchland, 2013, p. 163). Which social sciences are supposed to explain social practices and institutional norms? First and foremost are sociology, cultural anthropology, history, political science and economics. In the subsequent section, I focus on the interface between these social sciences and neurophilosophy.

6.1. Neurophilosophy, sociology, history, economics and cultural anthropology

Sociology examines the development, structure, and functioning of human society, whereas history deals with past human events. The third discipline, economics, is the social science that deals with the production, distribution, consumption, and transfer of wealth. The anthropology is the study of humans in the broadest sense. Because the Churchlands frequently emphasize the central role of the societal affairs, history, culture, and the subsistence, these social sciences should be of primary concern. However, that is not the case. She states that her research focuses on the interface between neuroscience and philosophy. She also adds that "increasingly philosophers have come to recognize that understanding how the brain works is essential to understanding the mind" (P. S. Churchland, 2014). There is an irritating discrepancy between her allegedly-giving high importance to the culture's role and her narrowly focusing on brain sciences. Her phrase may be rephrased in the

following way: neurophilosophers increasingly should have come to recognize that studying social sciences is essential to understanding how the brain works.

One might object that the Churchlands and other neurophilosophers already recognize that need. The objection is reasonable insofar as it does make a genuine distinction between macro-phenomena and micro-phenomena. Some sub-disciplines of economy, such as micro-economy, are highly interdisciplinary, and its explanations are grounded on the micro-level. Its theories such as neuro-economics or evolutionary game theory are experimental research areas which the scientists can use a few, or a few hundreds participants to attend a controlled experiment. This is not the case with macro-economic studies, such as the branches of growth and development. Micro-economic works are thought to be grounded empirically, since it utilizes tools such as controlled experiments, evolutionary biology, and brain sciences. Micro-economy is good for studying small-scale cooperation and punishment. It is bad for studying how the under-developed countries have been under-developed and could be developed. Small-scale cooperation and individual punishment are important to understand how the human brain works, but they are much less important to have a thorough explanation of how institutional norms shape humans' social intuitions about when and whom to punish and praise. The issue is much more complicated than having an interest in macro-level social scientific studies. When it comes to the discussion of tribal life, Patricia Churchland is astonishingly realistic and holistic. She knows the details of life styles of the Inuit and some Native American tribes so well, as obvious from her works. Her detailed explanations on the differences of warfare, between the Inuit, of Artic, and the Yanomamo, of Southern America, is almost completely ecological, or environmental if you like (P. S. Churchland, 2013, Chapter 6). On the other hand, when she comes to discuss American foreign affairs or racial tensions, its international military operations, or the living conditions of African Americans, she becomes surprisingly commonsensical. Her analyses on 1992 Los Angeles Uprising, USSR under the rule of Stalin, the 2007-2008 global economic crisis, and Cultural Revolution in China have been disappointingly unconvincing. Are they the topics that deserve less

scientific rigor than the parable of aggression in fruit flies? In the next section, I argue that that is not the case.

6.2. How to unite culture's role with neurophilosophy

Culture in anthropological sense comprises of the political system, jurisdiction, and economic organization in addition to many others. Neurophilosophy is the intersection of philosophy and brain sciences. Cultural neurophilosophy is to be placed at the interface between neurophilosophy and social sciences, which aim to have explanations for macro phenomena. Do I mean that the Churchlands have no interest in macro-level functioning of human societies? No, I do not, not at all. I should explicitly note that the Churchlands, of course, have their own understanding of how societies are functioning on macro scale. For example, their strong belief that democratic institutions are good for the prosperity, well-being, economic development, and social-political stability of human groups suggests that they presume a macro level social theory, embedded in their neurophilosophical theses. However, having an implicit theory about social functioning is one thing, critically analyzing it as a science is quite another. The missing side is the latter one. What should be done to make up for the missing part? The first thing that we should do is very straightforward: always remembering that culture and sociality are the second *nature* of our species. Our second nature can be studied with the same methods as brain and behavioral sciences to a *certain* extent. Beyond that, we must accept that there is a vast space for different tools, methodologies, the level of precision, and the sorts of evidence. All these differences in working practices should be welcome. The second thing that should be done is to become wiser than the commonsense, regarding social issues. Standard neo-classical assumptions about economic processes, vulgar American perspective on social history, and typical Western-type individualist (virtue) ethics should have been *regarded as hypotheses* to be critically examined, not to be taken for granted. If you reduce their status from unquestionable facts to hypotheses, then you will see that they are not so well confirmed.

The intricate decisions regarding legal regulations, social policy changes, medical intervention, neural enhancement, stem cell research, or wealth redistribution obviously should be *illuminated* by brain and behavior sciences inasmuch as it can be done. On the other hand, how the brain works and how our behaviors come into existence should be illuminated by the sciences of established institutions, of past human events, of economic relations, and of cultural practices. It does not mean that the current state of these macro-level social sciences is perfectly compatible with brain sciences. Obviously, they are not. Most of the social scientists hate brain talk. They must abandon their present attitude to the neurosciences. Neuroscientists' disdain against social sciences must be replaced by a cooperative attitude. Then, there would be a chance to have a genuinely unified human science.

6.3. The potential naysaying objections to cultural neurophilosophy

Neurophilosophy has always been a very marginal philosophical view. Cultural neurophilosophy may encounter a worse reaction. Answering the potential objections in advance would be a wise strategy. The objections can be divided into four: incoherent, groundless, useless, and irrelevant. Since neurophilosophy is frequently portrayed as biologist and reductionist, the objectors will immediately attack the very idea of cultural neurophilosophy. Thus I shall only make an attempt to respond to the most important objections to my project. The titles of each subsection represent a probable naysaying.

6.3.1. Incoherent, oxymoron, self-refuting

One may claim that "culture and biology are distinct worlds that cannot be synthesized". Thus he would say that the term 'cultural neurophilosophy' is an oxymoron. By being that, it is refuted at the outset. I think this objection would have been valid if it had been fifty years ago. Fifty years ago, our knowledge of neurobiology was much less than today. Then the neural speculations about human nature and behavior would have been completely meaningless. There were psychological speculations. The level of psychology was a good choice to

complement the social-level theories about human behavior. The good news is that today we can make legitimate attempts to explain some psychological events in neural terms. Thus neurobiology can illuminate human nature. I do not follow disciplinary boundaries, I follow the problems. In near or distant future, the social, behavioral, and neural sciences might be unified by correcting each other. Then talks about the tensions or exclusive relations between social sciences and life sciences might become rare and even obsolete.

6.3.2. Groundless

It is obviously true that today's neural science is yet to become a firm science as physics and chemistry are. Therefore, the opponents may reasonably claim that cultural neurophilosophy is groundless. However, even in physics the established truths are subject to revision. Then, why should we wait for neural sciences to become more and more grounded. The sciences, as long as they exist, develop through time. You should make your personal choice[31] when you decide to incorporate a level of explanation into the human nature question. It may be wrong to make your choice today. It is possible. But what would be a bigger fault is to refrain from giving your attention to an emerging science. The history has witnessed lots of resistance to newborn sciences. For that reason, I would not be surprised if many philosophers would say that "neurophilosophy is a meaningless attempt, and cultural neurophilosophy will be even more meaningless". There is no guarantee for success. But if we do not "boldly go where no one has gone before", what is the point of being a philosopher?

6.3.3. Useless

If somebody believes that neurophilosophy is a useless philosophical school, she, of course, would evaluate cultural neurophilosophy in a much more negative way. Yes it is useless if you insist to conserve the current situation of philosophy,

[31] I do not mean that the choice would depend on a person's character or private concerns. Of course, the choice must be made according to evidence. But because evidence is incomplete, what it entails is not clear. So the inference to the best explanation is a wise strategy.

regardless of your position as an analytical or continental philosopher. But I do not want to conserve it. Methodological conservation is only good if your practice is productive, in the sense that it still produces newer solutions to the old and recent problems. The Churchlands have launched their way since they believed that analytical philosophy is in an obstructed situation. It means that, because the critics of neurophilosophy do not think that analytical philosophy is in an obstructed condition, they regard neurophilosophy, at best, as useless. At worst, they said "it is irrelevant". Accordingly, the opponents would say the same things to cultural neurophilosophy in a more powerful way.

6.3.4. Irrelevant, not suitable for philosophers

The claim that neural level is irrelevant to the philosophical problems is the basic objection to neurophilosophy. So the opponents commonly say that learning some neural knowledge is not suitable for them. This kind of "I do not need to learn such and such" is common also among social sciences and humanities. For example, many old-style economists working on development has shown a strong resistance to learn micro-economy, since they believed that "these two research areas are two distinct worlds". Some psychiatrists continue to see modern genetic studies as irrelevant to their job. Some factory owners find spending money for software solutions unacceptable, despite their technical workers find it necessary. I have met a very open-minded young archeologist, who got irritated when I talked about synthesizing humanities with life sciences. In the same way, it is probable that an average analytical philosopher would regard cultural neurophilosophy as irrelevant to her/his job. Let me make some comments on her/him job. If your job is trying to solve the problem of Mary, the neuroscientist, and what she can and cannot know, it is completely true that cultural neurophilosophy is irrelevant to your job. If your job is to figure out the supreme criterion for the truth or knowledge, cultural neurophilosophy is obviously irrelevant to your job. But if you want to understand the underlying parameters of human nature, the causal relationships between prevailing social institutions and human behavior, and to contemplate on the possible

ways of improving human condition, then cultural neurophilosophy becomes relevant to your job.

CHAPTER 7

CONCLUSION

Making explorations beyond the frontiers is not an easy job. But philosophy is not for easy things. It is about loving (systematic) knowledge. New knowledge never comes if you do not seek for a journey to the unknown. We are yet to fully know how our social lives are related to our biology. Freud gave an explanation that today seems wrong. Social Darwinists, sociobiologists, evolutionary psychologists, the defenders of parallel distributed processing approach, cultural biologists, neuroconstructivists, and many others have offered their own hypotheses. As clear from my line of reasoning, for some of these hypotheses I have sympathy. For the others, I do not. My sympathy for example to cultural biology is due to its strong emphasis upon the environmental influences on brains, and in turn on human behavior and human nature. What I see as a missing aspect of such approaches is that they utilize a minimal sense of culture and social relations. When the issue is 1992 Los Angeles riots, the behavioral economics, cognitive psychology, or social neuroscience are hardly the correct sciences to use. Black people of the United State of America are much poorer than white people. Moreover, immediately before the riots, in South Africa a referendum to end the Apartheid regime was held in South African Republic. Reminding the Apartheid-like racial discrimination that was held against black people, in some states of US, is needless. Then at least there are international, historical, and economic parameters of the riots. These parameters are the job of the related social sciences. That is the missing point. This work aims to show the existence of that missing point. This is the *most basic target* of my work.

To completely fulfill it is beyond the scope of this work. However, although I am not able to complete the missing point, I have tried to make a preliminary work for a wider project. Let me recapitulate what I did here.

Because neurophilosophy is one of the greatly misunderstood philosophical schools, I have elaborated over neurophilosophy. In a single sentence, neurophilosophy claims that we should study nervous systems to understand and have solutions for philosophical problems, including but not limited to the following: human nature, consciousness, representations, memory, and knowledge. Then I have tried to find the exact positioning of neurophilosophy within naturalistic tradition. This is necessary, since the objections against neurophilosophy in fact are partly due to the negative approaches of the objectors against naturalism in general. Explicitly stating my understanding of naturalism, and defending it against the critics, I hope, I made it easier to introduce hot topics about neurophilosophy. These hot topics are: reductionism, eliminative materialism, and folk psychology. Reductionism is not the majority view in any of philosophical schools[32]. Many philosophers are against reductionism as if it were a haunted idea. In the first section of the fourth chapter, I aimed to explicate reductionism. When reductionism is correctly understood, neurophilosophy will be better understood. In one sentence, reductionism is not about phenomena, but about the theory that is to explain the relevant phenomena. That is, theories are reduced, not phenomena. It means that for example if a neurophilosopher argue for the reduction of psychology to neuroscience, it does not mean that psychology will be eliminated. Elimination and reduction are largely non-overlapping.

After the hot topics about neurophilosophy, I have a chapter titled "from genes to society". There I tried to separate my position from other scientifically-oriented

[32] In analytic philosophy, approximately two-thirds of philosophers are naturalist and the rate of physicalists are very similar (Bourget & Chalmers, 2013). But it is known that not all physicalists are reductionist. For example, many functionalist theses are clearly non-reductionist (P. M. Churchland, 2005; Fodor, 1981). Given the fact that functionalism is a popular view in analytic philosophy, I conclude that reductionism is not the majority view in even analytic philosophy, but it is not to say that reductionism is not a popular view in there. However, outside the analytic philosophy, reductionism is probably much less popular. Thus I anticipate that globally considering, reductionism is a minority view in scholarly philosophy.

approaches to the question of human nature. One of the greatest troubles relevant to defending neurophilosophy is that philosophers usually consider all biologically-centered view equally. In the fifth chapter, I argued against this common practice, i.e. considering all biologically-centered views equal. I compared cultural biology with evolutionary psychology. By doing so, I intended to reduce the fear of falling into biologism. By describing what cultural biology is, and its differences from evolutionary psychology, my purpose was to show that neurobiology does not entail ignoring or defying social sciences. However, as I have explained in the sixth chapter, cultural biology's, like neurophilosophy's sense of culture and social relations is very minimal. Let me explain what I mean by 'minimal'.

In Anglo-American academia, social relations include even two-people relations such as mother-child bonding. However, beside the minimalist sense of 'social relations', there are large-scale relations. For example, the relations between social and economic classes, the international relations, and the historical events that bring about the present situation are macro-scale social relations. This is the missing point of cultural biology and neurophilosophy. 1992 Los Angeles riots, I think, served as a good illustration for my point. In addition, in the other sections of the sixth chapter, I made an effort to address four probable naysaying to the project of cultural neurophilosophy: incoherent, groundless, useless, and irrelevant. No need to repeat them here.

A thorough cultural neurophilosophy needs to examine social lives, and maybe the psychological and psychiatric disorders in the countries such as North Korea and former-USSR. These sorts of countries have very different social institutions and economic relations from the Western countries. Only after closely examining them, we will have a chance to reliably understand human nature and human behavior. Of course, the red nations are not the only possible atypical nations. Maybe the Western nations are atypical. That would imply that the cognitive neuroscientific and psychological studies done in Western part of the world are highly suspicious. This possibility is examined for some countries and tribes. But the examination must extend to countries such as the former-USSR, North Korea, and Cuba. These are just

a couple of things, among many others, that should be done to talk about a cultural neurophilosophy in a meaningful way. What I did in this work makes clarifications about neurophilosophy, shows its missing aspects, and presents a route map to fill in the blanks.

REFERENCES

Abend, G. (2012). What the Science of Morality Doesn't Say About Morality. *Philosophy of the Social Sciences*, *43*(2), 157–200. doi:10.1177/0048393112440597

Alcmaeon. (2014). In *Encyclopaedia of Britannica*. Retrieved from http://www.britannica.com/EBchecked/topic/13331/Alcmaeon

Baggini, J. (2011). The self: why science is not enough. *New Scientist*, *209*(2803), 34–35. doi:10.1016/S0262-4079(11)60577-0

Barrett, L. (2011). *Beyond the Brain: How Body and Environment Shape Animal and Human Minds*. Princeton, N.J: Princeton University Press.

Bechtel, W., & Hamilton, A. (2007). Reductionism, integration, and the unity of the sciences. In T. Kuipers (Ed.), *Philosophy of Science: Focal Issues (Volume 1 of the Handbook of the Philosophy of Science)*. New York: Elsevier. Retrieved from http://mechanism.ucsd.edu/research/bechtel.hamilton.reduction.pdf

Bergen, S. E., Gardner, C. O., & Kendler, K. S. (2007). Age-related changes in heritability of behavioral phenotypes over adolescence and young adulthood: a meta-analysis. *Twin Research and Human Genetics : The Official Journal of the International Society for Twin Studies*, *10*(3), 423–33. doi:10.1375/twin.10.3.423

Berker, S. (2009). The Normative Insignificance of Neuroscience. *Philosophy & Public Affairs*, *37*(4), 293–329. doi:10.1111/j.1088-4963.2009.01164.x

Bickle, J., Mandik, P., & Landreth, A. (2012). The Philosophy of Neuroscience. In (E. N. Zalta, Ed.)*The Stanford Encyclopedia of Philosophy*. Retrieved from http://plato.stanford.edu/archives/sum2012/entries/neuroscience/

Bourget, D., & Chalmers, D. (2013). What do Philosopher's Believe? *Philosophical Studies*, 1–36. Retrieved from http://link.springer.com/article/10.1007/s11098-013-0259-7/fulltext.html

Brown, D. E. (1991). *Human universals*. New York: McGraw-Hill.

Buss, D. M. (2001). Human nature and culture: an evolutionary psychological perspective. *Journal of Personality*, *69*(6), 955–978.

Buss, D. M., & Shackelford, T. K. (1997). Human aggression in evolutionary psychological perspective. *Clinical Psychology Review*, *17*(6), 605–619.

Chagnon, N. A. (1997). *Yanomano : the fierce people* (5th ed.). Fort Worth: Harcourt Brace College Publishers.

Chalmers, D. (1996). Facing Up to the Problem of Consciousness. *Journal of Consciousness Studies*, *2*(3). Retrieved from http://www.imprint.co.uk/chalmers.html

Chalmers, D. (2006a). Phenomenal Concepts and the Explanatory Gap. In *Phenomenal Concepts and Phenomenal Knowledge: New Essays on Consciousness and Physicalism*. Oxford: Oxford University Press.

Chalmers, D. (2006b). Strong and Weak Emergence. In C. P & D. P (Eds.), *The Re-Emergence of Emergence.* Oxford University Press.

Champagne, F., & Meaney, M. J. (2001). Like mother, like daughter: evidence for non-genomic transmission of parental behavior and stress responsivity. *Progress in Brain Research*, *133*, 287–302.

Churchland, P. M. (1981). Eliminative Materialism and the Propositional Attitudes. *The Journal of Philosophy*, *78*(2), 67–90. doi:10.2307/2025900

Churchland, P. M. (1985). Reduction, Qualia, and the Direct Introspection of Brain States. *The Journal of Philosophy*, *82*(1), 8. doi:10.2307/2026509

Churchland, P. M. (1989a). *A neurocomputational perspective : the nature of mind and the structure of science*. Cambridge, MA: MIT Press.

Churchland, P. M. (1989b). Folk Psychology and the Explanation of Human Behavior. *Philosophical Perspectives*, *3*, 225–241. doi:10.2307/2214269

Churchland, P. M. (1998). Toward a Cognitive Neurobiology of the Moral Virtues. *Topoi: An International Review of Philosophy*, *17*(2), 83. doi:10.1023/A:1017186710699

Churchland, P. M. (2005). Functionalism at forty: A critical retrospective. *Journal of Philosophy*, *102*(1), 33–50.

Churchland, P. M. (2012). *Plato's camera : how the physical brain captures a landscape of abstract universals*. Cambridge, Mass: MIT Press.

Churchland, P. M., & Churchland, P. S. (1983). Stalking the Wild Epistemic Engine. *NOUS*, *17*, 5. doi:10.2307/2214808

Churchland, P. S. (1974). Logical Form and Ontological Decision. *The Journal of Philosophy*, *71*(17, Seventy-First Annual Meeting of the American Philosophical Association Eastern Division, (Oct. 10, 1974)), 599–600. Retrieved from http://philosophyfaculty.ucsd.edu/faculty/pschurchland/papers/jphil74logicalformontologicaldecisions.pdf

Churchland, P. S. (1980). A Perspective on Mind-Brain Research. *Journal of Philosophy*, *77*(4), 185–207. doi:10.2307/2025588

Churchland, P. S. (1982a). Is the Visual System as Smart as It Looks? *PSA: Proceedings of the Biennial Meeting of the Philosophy of Science Association*, *1982*, 541–552.

Churchland, P. S. (1982b). Mind-brain reduction: new light from the philosophy of science. *Neuroscience*, *7*(5), 1041–1047. doi:10.1016/0306-4522(82)91117-4

Churchland, P. S. (1983). Consciousness: the Transmutation of a Concept. *Pacific Philosophical Quarterly*, *64*, 80.

Churchland, P. S. (1986). *Neurophilosophy: toward a unified science of the mind-brain*. Cambridge, Mass: MIT Press.

Churchland, P. S. (1987). Epistemology in the Age of Neuroscience. *The Journal of Philosophy*, *84*(10), 544–553.

Churchland, P. S. (1988a). Replies. *Biology & Philosophy*, (3), 393–402.

Churchland, P. S. (1988b). The significance of neuroscience for philosophy. *Trends in Neurosciences*, *23*(4), 175–8. Retrieved from http://www.sciencedirect.com/science/article/pii/0166223688900914

Churchland, P. S. (1990). Is Neuroscience Relevant to Philosophy? *Canadian Journal of Philosophy*, *16*, 323.

Churchland, P. S. (1992). *The computational brain*. (T. J. (Terrence J. Sejnowski, Ed.). Cambridge, Mass: MIT Press.

Churchland, P. S. (1994). Can Neurobiology Teach Us Anything about Consciousness? *Proceedings and Addresses of the American Philosophical Association*, *67*(4), 23–40. doi:10.2307/3130741

Churchland, P. S. (1997). Recent work on consciousness: philosophical, theoretical, and empirical. *Seminars in Neurology*, *17*(2), 179–186. doi:10.1055/s-2008-1040928

Churchland, P. S. (2002). *Brain-wise : studies in neurophilosophy*. Cambridge, Mass, Mass: MIT Press.

Churchland, P. S. (2007). Neurophilosophy: the early years and new directions. *Functional Neurology*, *XXII*(4), 185–195.

Churchland, P. S. (2008). The impact of neuroscience on philosophy. *Neuron*, *60*(3), 409–11. doi:10.1016/j.neuron.2008.10.023

Churchland, P. S. (2010). Roots of right and wrong. *New Scientist*, *208*(2782), 48–49.

Churchland, P. S. (2011). *Braintrust: What neuroscience tells us about morality*. Princeton: Princeton University Press.

Churchland, P. S. (2013). *Touching a nerve: The self as brain*. New York: W. W. Norton & Company.

Churchland, P. S. (2014). Patricia Smith Churchland. Retrieved August 25, 2014, from http://philosophyfaculty.ucsd.edu/faculty/pschurchland/index_hires.html

Churchland, P. S., & Churchland, P. M. (2002). Neural worlds and real worlds. *Nature Reviews. Neuroscience*, *3*(11), 903–7. doi:10.1038/nrn958

Churchland, P. S., & Sejnowski, T. J. (1990). Neural Representation and Neural Computation. *Philosophical Perspectives*, *4*, 343. doi:10.2307/2214198

Clark, A. (2008). *Supersizing the mind: Embodiment, action, and cognitive extension*. Oxford and New York: Oxford University Press.

Clark, M. M., & Galef, B. G. (1995). Prenatal influences on reproductive life history strategies. *Trends in Ecology & Evolution*, *10*(4), 151–153.

Cobb-Clark, D. A., & Schurer, S. (2012). The stability of big-five personality traits. *Economics Letters*, *115*, 11–15.

Cold Spring Harbor Laboratory. (2002a). A gene is a discrete sequence of DNA nucleotides. *DNA from the Beginning*. Retrieved January 12, 2014, from http://www.dnaftb.org/23/

Cold Spring Harbor Laboratory. (2002b). RNA is an intermediary between DNA and protein. *DNA from the Beginning*. Retrieved January 12, 2014, from http://www.dnaftb.org/21/

Cosmides, L., & Tooby, J. (1999). Evolutionary Psychology. In (R. A. Wilson & F. C. Keil, Eds.)*MIT Encyclopedia of Cognitive Science*. Cambridge, Mass.: The MIT Press.

Cosmides, L., & Tooby, J. (2013). Evolutionary psychology: new perspectives on cognition and motivation. *Annual Review of Psychology*, *64*, 201–29. doi:10.1146/annurev.psych.121208.131628

Durrant, R., & Haig, B. D. (2001). How to pursue the adaptationist program in psychology. *Philosophical Psychology*, *14*(4), 357–380. doi:10.1080/09515080120088067

"experiment, n." (2014). In *OED Online*. June 2014. Oxford University Press. Retrieved from http://www.oed.com/view/Entry/66530?result=1&rskey=a7zUeK&

Flynn, E. G., Laland, K. N., Kendal, R. L., & Kendal, J. R. (2013). Target article with commentaries: developmental niche construction. *Developmental Science*, *16*(2), 296–313. doi:10.1111/desc.12030

Fodor, J. (1974). Special sciences: or The Disunity of Science as a Working Hypothesis. *Synthese*, *28*(2), 97–115.

Fodor, J. (1975). *The Language of Thought*. New York: Thomas Y. Crowell Company.

Fodor, J. (1981). The Mind-body problem. *Scientific American*, *244*, 114–125.

Fowler, J. H., & Schreiber, D. (2008). Biology, Politics, and the Emerging Science of Human Nature. *Science*, *322*(5903), 912–914. Retrieved from http://jhfowler.ucsd.edu/biology_and_politics.pdf

Freedman, A. M. (1995). The biopsychosocial paradigm and the future of psychiatry. *Comprehensive Psychiatry*, *36*(6), 397–406. doi:10.1016/S0010-440X(95)90246-5

Gallagher, S. (2006). *How the Body Shapes the Mind*. Oxford University Press.

Gerstein, M. B., Bruce, C., Rozowsky, J. S., Zheng, D., Du, J., Korbel, J. O., … Snyder, M. (2007). What is a gene, post-ENCODE? History and updated definition. *Genome Research*, *17*(6), 669–81. doi:10.1101/gr.6339607

Gottlieb, G. (2001). *Individual Development and Evolution* (p. -1). Routledge. doi:doi:10.4324/9781410604422

Greenspan, R. J. (2001). The flexible genome. *Nature Reviews. Genetics*, *2*(5), 383–7. doi:10.1038/35072018

Greenspan, R. J. (2004). E pluribus unum, ex uno plura: quantitative and single-gene perspectives on the study of behavior. *Annual Review of Neuroscience*, *27*(Provine 1971), 79–105. doi:10.1146/annurev.neuro.27.070203.144323

Greenspan, R. J. (2009). Selection, gene interaction, and flexible gene networks. *Cold Spring Harbor Symposia on Quantitative Biology*, *74*, 131–8. doi:10.1101/sqb.2009.74.029

Griffiths, P. E., & Stotz, K. (2006). Genes in the postgenomic era. *Theoretical Medicine and Bioethics*, *27*(6), 499–521. doi:10.1007/s11017-006-9020-y

Haidt, J., & Joseph, C. (2011). How moral foundations theory succeeded in building on sand: a response to suhler and churchland. *Journal of Cognitive Neuroscience*, *23*(9), 2117–2122. doi:10.1162/jocn.2011.21638

Han, S., Northoff, G., Vogeley, K., Wexler, B. E., Kitayama, S., & Varnum, M. E. W. (2013). A cultural neuroscience approach to the biosocial nature of the human brain. *Annual Review of Psychology*, *64*(1), 335–59. doi:10.1146/annurev-psych-071112-054629

Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *The Behavioral and Brain Sciences*, *33*(2-3), 61–83; discussion 83–135. doi:10.1017/S0140525X0999152X

Horvath, C. (2000). Interactionism and Innateness in the Evolutionary Study of Human Nature. *Biology and Philosophy*, *15*, 321–337.

Hume, D. (2000). *A Treatise of Human Nature*. (D. F. Norton & M. J. Norton, Eds.)*A Treatise of Human Nature* (Vol. 26). New York: Oxford University Press.

Hutto, D. D., & Myin, E. (2012). *Radicalizing Enactivism: Basic Minds without Content*. Cambridge, Mass: MIT Press.

Jablonka, E., & Lamb, M. J. (2006). *Evolution in Four Dimensions: Genetic, Epigenetic, Behavioral, and Symbolic Variation in the History of Life*. Cambridge, Mass.: MIT Press. A Bradford Book.

Jackson, F., & Chalmers, D. (2001). Conceptual Analysis and Reductive Explanation. *Philosophical Review*, *110*(3), 315–360. Retrieved from http://www.jonathanschaffer.org/ChalmersJackson-ConceptualAnalysis.pdf

Jasny, B. R., Kelner, K. L., & Pennisi, E. (2008). Genetics of behavior. From genes to social behavior. Introduction. *Science*, *322*(5903), 891. doi:10.1126/science.322.5903.891

Jong, H. L. De, & Steen, W. J. Van Der. (1998). Biological thinking in evolutionary psychology : Rockbottom or Biological thinking in evolutionary psychology : rockbottom or quicksand ? *Philosophical Psychology*, *11*(2), 183–205.

Klimstra, T. A., Bleidorn, W., Asendorpf, J. B., van Aken, M. A. G., & Denissen, J. J. A. (2013). Correlated change of Big Five personality traits across the lifespan: A search for determinants. *Journal of Research in Personality*, *47*(6), 768–777.

Laland, K. N., Odling-Smee, J., & Myles, S. (2010). How culture shaped the human genome: bringing genetics and the human sciences together. *Nature Reviews. Genetics*, *11*(2), 137–48. doi:10.1038/nrg2734

Lamm, E., & Jablonka, E. (2008). The Nurture of Nature: Hereditary Plasticity in Evolution. *Philosophical Psychology*, *21*(3), 305–319. doi:10.1080/09515080802170093

Lende, D. H., & Downey, G. (Eds.). (2012). *The Encultured Brain: an introduction to neuroanthropology*. Cambridge, Mass.: MIT Press.

Levine, J. (1983). Materialism and qualia: The explanatory gap. *Pacific Philosophical Quarterly*, *64*, 354–361. Retrieved from http://www.uoguelph.ca/~abailey/Resources/levine.pdf

Lewontin, R. (2011). The Genotype/Phenotype Distinction. In *The Stanford Encyclopedia of Philosophy*. Retrieved from <http://plato.stanford.edu/archives/sum2011/entries/genotype-phenotype/>

Lumsden, C. J., & Wilson, E. O. (1981). *Genes, mind, and culture : the coevolutionary process*. (E. O. (Edward O. Wilson, Ed.). Cambridge, Mass: Harvard University Press.

Machery, E. (2008). A Plea for Human Nature. *Philosophical Psychology*, *21*(3), 321–329. doi:10.1080/09515080802170119

Mareschal, D. (2011). From NEOconstructivism to NEUROconstructivism. *Child Development Perspectives*, *5*(3), 169–170. doi:10.1111/j.1750-8606.2011.00185.x

Mareschal, D., Johnson, M. H., Sirois, S., Spratling, M. W., & Thomas, Michael S C Westermann, G. (2007). *Neuroconstructivism: How the Brain Constructs Cognition, Vol. 1*. Oxford, New York: Oxford University Press.

McCauley, R. N. (2007). Reduction. In (P. Thagard, Ed.)*Handbook of Philosophy of Science. Philosophy of Psychology and Cognitive Science*. Retrieved from http://www.sciencedirect.com/science/article/pii/B9780444515407500219

McClelland, J. L. (2009). Is a Machine Realization of Truly Human-Like Intelligence Achievable? *Cognitive Computation*, *1*(1), 17–21. doi:10.1007/s12559-009-9015-x

McClelland, J. L. (2010). Emergence in Cognitive Science. *Topics in Cognitive Science*, *2*(4), 751–770. doi:10.1111/j.1756-8765.2010.01116.x

McClelland, J. L., Botvinick, M. M., Noelle, D. C., Plaut, D. C., Rogers, T. T., Seidenberg, M. S., & Smith, L. B. (2010). Letting structure emerge: connectionist and dynamical systems approaches to cognition. *Trends in Cognitive Sciences*, *14*(8), 348–356.

Metzinger, T. (2003). *Being No One: the self-model theory of subjectivity*. Cambridge, Mass.: MIT Press. A Bradford Book.

Metzinger, T. (2009). *The Ego Tunnel - The Science of the Mind and the Myth of the Self*. New York, N.Y.: Basic Books.

Mill, J. S. (1985). *On Liberty*. (G. Himmelfarb, Ed.). London: Penguin.

Nagel, T. (1974). What is it like to be a bat? *Philosophical Review*, *4*, 435–450.

Papineau, D. (2009). Naturalism. In (E. N. Zalta, Ed.)*The Stanford Encyclopedia of Philosophy*. Retrieved from <http://plato.stanford.edu/archives/spr2009/entries/naturalism/>

Paris Albert, S., Comins Mingol, I., & Roda Bruc, J. (2013). Epistemological and Anthropological Thoughts on Neurophilosophy: An Initial Framework. *Recerca: Revista De Pensament I Analisi*, 1363–83.

Pearson, H. (2006). What is a gene? *Nature, 441*, 399–401.

Pinker, S. (2003). *The Blank Slate: the modern denial of human nature*. London: Penguin Books.

Plomin, R., & Daniels, D. (2010). Why are children in the same family so different from one another? *Behavioral and Brain Sciences*, *40*(3), 563–82. doi:10.1093/ije/dyq148

Plomin, R., DeFries, J. C., McClearn, G. E., & McGuffin, E. (2008). *Behavioral genetics* (5th ed.). New York: Worth Publishers.

Prinz, J. J. (2012). *Beyond human nature: how culture and experience shape our lives*. Allen Lane.

Quartz, S. R. (1999). The constructivist brain. *Trends in Cognitive Sciences*, *3*(2), 48–57.

Quartz, S. R., Pinker, S., & Trehub, A. (1997). EDGE 19- The exchange between Quartz and Pinker. *The Edge*. Retrieved March 12, 2014, from http://www.edge.org/documents/archive/edge19.html

Quartz, S. R., & Sejnowski, T. J. (2003). *Liars, lovers, and heroes : what the new brain science reveals about how we become who we are*. New York: Quill.

Quine, W. V. 0. (1995). Naturalism, or, living within ones means. *Dialectica*, *49*(2-4), 251–261.

Quine, W. V. 0. (2004). *Quintessence: basic readings from the philosophy of W. V. Quine*. (J. Roger F. Gibson, Ed.). Cambridge, Mass.: Belknap Press of Harvard University Press.

Rai, D., Golding, J., Magnusson, C., Steer, C., Lewis, G., & Dalman, C. (2012). Prenatal and early life exposure to stressful life events and risk of autism spectrum disorders: population-based studies in Sweden and England. *PloS One*, *7*(6), e38893. doi:10.1371/journal.pone.0038893

Robinson, G. E., Fernald, R. D., & Clayton, D. F. (2008). Genes and social behavior. *Science*, *322*(5903), 896–900. doi:10.1126/science.1159277

Rumelhart, D. E., McClelland, J. L., & Group, T. P. R. (1986). *Parallel Distributed Processing: Explorations in the Microstructure of Cognition. Volume 1: Foundations*. Cambridge, MA: MIT Press.

Silvers, S. (2007). Adaptation, Plasticity, and Massive Modularity in Evolutionary Psychology: An Eassy on David Buller's Adapting Minds. *Philosophical Psychology*, *20*(6), 793–813. doi:10.1080/09515080701692213

Smith, A. (1981). *An inquiry into the nature and causes of the wealth of nations*. Indianapolis: Liberty Classics.

Smith, A. (2002). *The Theory of Moral Sentiments*. (K. Haakonssen, Ed.). New York: Cambridge University Press.

Solymosi, T. (2011). Neuropragmatism, Old and New. *Phenomenology and the Cognitive Sciences*, *10*(3), 347–368. doi:10.1007/s11097-011-9202-6

Suhler, C. L., & Churchland, P. S. (2011). Can Innate, modular "foundations" explain morality? Challenges for Haidt's Moral Foundations Theory. *Journal of Cognitive Neuroscience*, *23*(9), 2103–16; discussion 2117–22. doi:10.1162/jocn.2011.21637

Tooby, J., & Cosmides, L. (1989). Evolutionary psychology and the generation of culture, part I. *Ethology and Sociobiology*, *10*(1-3), 29–49. doi:10.1016/0162-3095(89)90012-5

Tooby, J., & Cosmides, L. (1990). On the Universality of Human Nature and the Uniqueness of the Individual: The Role of Genetics and Adaptation. *Journal of Personality*, *58*(1), 17–67. doi:10.1111/j.1467-6494.1990.tb00907.x

Tooby, J., & Cosmides, L. (1997). Evolutionary Psychology: A Primer. Retrieved from http://www.cep.ucsb.edu/primer.html

Tooby, J., Cosmides, L., & Barrett, H. C. (2005). Resolving the debate on innate ideas: Learnability constraints and the evolved interpenetration of motivational and conceptual functions. In P. Carruthers, S. Laurence, & S. Stich (Eds.), *The Innate Mind: Structure and Content*. New York: Oxford University Press.

Trivers, R. L. (1971). The Evolution of Reciprocal Altruism. *The Quarterly Review of Biology*, *46*(1), 35–57. doi:10.1086/406755

Trivers, R. L. (1972). Parental Invesment and Sexual Selection. In B. Campbell (Ed.), *Sexual selection and the descent of man* (pp. 136–179). Chicago, IL: Aldine.

Tümkaya, S. (n.d.-a). A Plea for Neurophilosophy. In *abstract written for 15th Congress of Logic, Methodology and Philosophy of Science, CLMPS 2015*. Helsinki, Finland.

Tümkaya, S. (n.d.-b). Anti-brain Naturalism vs Neurophilosophy. In *9th Annual Conference of the Postgraduate Philosophy Association of Southern Africa (PPA)*. Durban, South Africa.

Westermann, G., Mareschal, D., Johnson, M. H., Sirois, S., Spratling, M. W., & Thomas, M. S. C. (2007). Neuroconstructivism. *Developmental Science*, *10*(1), 75–83. doi:10.1111/j.1467-7687.2007.00567.x

Williams, B. (2002). Contemporary Philosophy: A Second Look. In N. Bunnin & E. P. Tsui-James (Eds.), *The Blackwell Companion to Philosophy* (pp. 23–34). Oxford, UK: Blackwell Publishing Ltd. doi:10.1002/9780470996362.ch2

Wilson, E. O. (1978). *On human nature*. Cambridge: Harvard University Press.

Wilson, E. O. (2013). *The Social Conquest of Earth*. Liveright.

Wright, R. (1994). *The moral animal : the new science of evolutionary psychology*. New York: Pantheon Books.

Zahavi, D. (2001). Beyond empathy. Phenomenological approaches to intersubjectivity. *Journal of Consciousness Studies*, *8*(5-7), 151–167.

APPENDIX A. TURKISH SUMMARY

Nörofelsefe kadim felsefi problemlerin çözülebilmesi için sinir sistemlerinin çalışılması gerektiğini savunan, materyalist, tekçi, doğalcı, bilimsel-yönelimli ve indirgemeci bir felsefi yaklaşımdır. Ayrıca nörofelsefe bazı felsefi bilmecelerin bilim geliştikçe anlamsızlaşacağı ve çözülmek yerine bir sorun olarak varlığının sona ereceğini de iddia eder. Nörofelsefi yaklaşım Kanada kökenli felsefeci çift Patricia ve Paul Churchland tarafından yaklaşık 40 sene önce ortaya sürülüp geliştirilmiştir. Halen oldukça marjinal bir görüştür. Marjinal kalmasının temel nedenleri bana göre iki ana grupta toplanabilir. İlkinde ciddi bir yanlış anlaşılma ve önyargı bariyeri yer almaktadır. İkincisi ise daha sosyolojiktir. Felsefeciler aynen diğer akademik disiplin sahipleri gibi alanlarını korumaya yönelik çok güçlü bir doğal direnç sahibidir. Nörofelsefe *bilindiği şekliyle* felsefeye varoluş zemini bırakmıyor gibi görünmektedir. İşte bu nedenle nörofelsefe korkulan bir felsefi konum haline gelmiştir. Yanlış anlama ve önyargılar ise biraz daha farklı bir meseledir. Yanlış anlamalar indirgeme, materyalizm, doğalcılık ve bilimsel-yönelimli olmak gibi nörofelsefenin temel unsurlarına dair felsefe içindeki geniş kapsamlı ve oldukça derine işlemiş bir iç içe geçmiş yanlış anlamalar ağının bir ürünüdür. Elbette nörofelsefenin şiddetle reddedilmesinde kendi büyük hata ve eksiklerinin de önemli bir payı vardır. Örneğin nörofelsefeciler sosyal ve kültürel etmenlerin insan davranışının içinde yer aldığı matriste önemli bileşenler olduğunu yıllardır belirtmelerine rağmen bu faktörleri somut analizlerine pek de fazla dahil etmemiş ya da edememişlerdir. Yani kültürel ve sosyal yanı sinirsel yanına göre güdük kalmıştır. Bu çalışma güdük kalan bu yanın nasıl geliştirilebileceğini tartışmaya dönüktür.

Burada ben temel olarak sosyoloji, tarih, siyaset bilim ve iktisadın insan davranışının somut analizine en az beyin bilimleri kadar dahil edilmesinin bir zorunluluk olduğunu iddia edeceğim. Bunu başarabilmek için ilk önce nörofelsefenin

çeşitli tanımlarını, tarihini ve anaakım analitik felsefeden başlıca farklılıklarını tartışmakla işe başlayacağım. Ardından, şu üç temel itirazı ele alıp yanıtlamaya çalışacağım: "beyin bilgisi felsefi problemler ile ilişkisizdir", "sinir bilimleri bu problemler hakkında konuşabilmek için henüz çok az gelişkindir" ve "felsefi çalışma normlarla ilgili iken bilim var olan hakkındadır". Bu noktada ben beyin bilgisinin felsefi problemler ile ilişkisiz olmasının düşünülemeyeceğini, sinir bilimlerinin hala çok genç olmasına rağmen bugüne kadar felsefi meseleleri anlamaya alçak gönüllü bir katkıda bulunduğunu ve felsefi çalışmanın yalnızca normlarla ilgili olmadığı gibi bilimin de normlarımızı aydınlatmada iyi bir kılavuz olabileceğini savunacağım. Daha sonra nörofelsefenin doğalcı felsefi gelenek içindeki tam konumlanışını bulmaya çalışıyorum. Dördüncü kısımda, nörofelsefeyi kabul edilemez hale getiren üç ana meseleyi analiz ediyorum: indirgemecilik, eliminatif materyalizm ve folk psikolojisi. Beşinci kısımda insan doğası temel tartışma konum oluyor. DNA'dan, RNA'ya, amino asitlere, proteinlere, hücrelere, sinir devrelerine ve oradan sinir sistemine ve onun vücut ve dış dünya dediğimiz çevre ile etkileşimine ve bu etkileşimin bir ürünü olan insan doğası ve insan davranışına dair birbirine çok benziyor gibi görünen ama biri nörofelsefenin ruhuna çok aykırı ama diğeri bu ruhla oldukça uyumlu iki hipotezi karşılaştırıyorum: evrimsel psikoloji ve kültürel biyoloji. Aslında bu kısımda açıkça görüldüğü üzere bu tezde önerdiğim 'kültürel nörofelsefe' 'kültürel biyoloji' ve 'nörofelsefenin' yalın olmaktan uzak bir sentezidir. İşte bu nedenlerle, altıncı kısımda nörofelsefenin sosyal bilimlerle nasıl uzlaştırılabileceği meselesini masaya yatırıyorum. Bu kısımdaki temel derdim nörofelsefe yahut kendisinde sosyal-kültürel gibi önekler bulunan biyolojik-merkezli görüşlerin temel sorununun onların sosyal-kültürel faktörlerin menzilini çok sınırlı tutmaları ve daha çok benim mikro-sosyal bilimler dediğim sahayı işe dahil etmeleridir. Benim bakışımdan burada eksik olan şey makro-düzeyli sosyal ilişkilerin resme dahil edilmemesidir.

Nedir makro-düzey sosyal ilişkiler? Bir kere, bu ilişkiler genellikle grup ya da ülke hatta bazen küresel ölçektedir. Örneğin anne-çocuk ilişkisi her ne kadar memeli sosyalliğinin en temel biçimi olsa da sosyal bilimlerin en öncelikli çalışma sahalarından biri değildir. Zaten bu tür iki-kişilik ilişkiler daha çok davranış bilimleri

ile sosyal bilimlerin keşişimde yer alan psikolojinin yetki alanında görülmektedir. Taraftar grupları arasındaki çatışmalar ise hem sosyal psikolojinin ve hem de sosyolojinin ortak çalışma alanı olarak değerlendirilebilir. Ama bir de üretim sektörleri, meslek grupları, sosyal ve iktisadi sınıfların birbirleri ile olan karmaşık ilişkileri vardır. Bu araştırma zeminine elbette beyin ve davranış bilimleri de dahil olabilir. Zaten başta nöroekonomi ve sosyal nörobilim olmak üzere çeşitli biyolojik bilimler bu tür meseleler hakkında çeşitli hipotezler geliştirmeye başlamışlardır. Fakat yine de bu sorular şimdilik daha büyük ölçekli açıklamalara ihtiyaç duyuyor gibi görünmektedir. Ne demek istediğimi açıklamaya çalışayım.

İhracatçılar ile ithalatçılar döviz kuru konusunda sıklıkla az ya da çok çatışan yönlendirmelerde bulunurlar. Bu sistemin kendi mantığı açısından kaçınılmazdır. İhracatçı açısından yerel paranın biraz değer kaybetmesi genellikle iyidir, ama ithalatçı için bu dövize daha çok kaynak ayırmak anlamına gelir. Bu istenilir bir ekonomik durum değildir. Beyin bilimleri belki bu tür tercihler esnasında bu iki büyük mülk sahibi grubun beynin de neler olup bittiğini detaylı şekilde ölçüp biçebilir. Ama ekonominin bu meseledeki mantığı oldukça yalın ama bir o kadar da katıdır. Beyin ve davranış bilimleri en fazla bu katı ekonomik mantığın beyindeki sinirsel karşılığını verebilir. Fakat bu problemin kendisi açısından hayati bir öneme sahip değildir. Başka bir örneği ele alalım. Ulusal asgari ücretin belirleneceği komisyon toplantıları hep sıkıntılı geçer. Bu komisyonda temsilen edilen kurumlar temsilci olarak kimi belirlerlerse belirlesinler mantık hep aynıdır. İşveren kesimi o yılın ücret zammını asgari tutmaya çalışırken, işçi kesiminin temsilcileri bu oranı olabildiğince yüksek tutmaya gayret eder. İşveren kesimi rekabet içindedir ve rekabet onları karları ve gelirlerini sürekli arttırmaya sevk eder. Kar ve gelirin arttırılmasının en kolay yollarından biri de ücretleri aşağıya çekmektir. Bu çok katı ama bir o kadar da yalın ekonomi mantığıdır. İşçi kesimi ise daha yüksek kaliteli bir yaşam ister. Bunun için asgari fizik ihtiyaçlar olan ısınma, barınma, beslenme ve sağlık hizmetine erişimin sağlanması elzemdir. Asgari ücret mesela neredeyse tüm ülkelerde bu bahsettiğim temel ihtiyaçları asgari düzeyde karşılayacak şekilde düzenlenir. İşçiler her daim bu düzenlemeyi kendi lehlerine olacak şekilde yenilemek ister, aynı işverenin yaptığı gibi. Siz bu ücret belirleme komisyonundaki temsilcileri

aşırı pahalı beyin görüntüleme cihazlarının içerisine istediğiniz kadar koyun, ekonominin mantığı o kadar açıktır ve katıdır ki, neden iki kesimin zıt yönde taleplerde bulunduğu sorusunu yanıtlamanıza o cihazların herhangi bir katkıda olmayacaktır. Şimdi izninizle beyin ve davranış bilimlerinin hangi türden sosyal olguların nedenlerinin keşfedilmesine katkı koyabileceğini açıklayayım. Çünkü durum sadece bu paragrafta anlattığım kadar negatif ise nörofelsefeyi tümüyle terk etmek gerekirdi. Şimdi öyle mi değil mi bakalım.

Sosyal ilişkiler iki kişilikten başlayıp küresel ölçeğe kadar değişkenlik gösterir. Açıktır ki anne-çocuk ilişkisi biyolojinin çeşitli alanları tarafından incelenmeye en uygunudur, çünkü anne ve çocuk arasında kanıtlanmış çok güçlü kimyasal bağlar mevcuttur. Mesela oksitosin-merkezli açıklamalar makul gözükmektedir. Elbette dileyen Freud türü ya da yakın dönemli psikanalisttik açıklamaları da benimseyebilir. Fakat burada önemli olan biyolojik açıklamaların da bu tür meselelerin açıklanmasında meşru bir açıklama düzeyi teşkil edip etmedikleridir. Şimdilik sorunun yanıtı olumlu görünmektedir. Başka hangi meseleler nöral açıklamalar için uygun olabilir? Mesela insan doğası böyle bir sorun mudur? Ya ahlak? İşte bu tür meseleler kültürel nörofelsefenin devreye girmesini önerdiğim yerlerdir. Şimdi nasıl bu meseleler üzerine yalnızca makro-düzey sosyal açıklamalar yahut doğrudan sinirsel açıklamaları değil de kültürel nörofelsefi açıklamaları tercih etmemiz gerektiğini açıklamaya çalışayım.

İnsan doğası genellikle bir dizi doğuştan gelen, evrensel ve kolay kolay değiştirilemez insan kişilik özellikleri ve davranışsal eğilimlerini ifade etmek için kullanılan muğlak bir ifadedir. Halk içerisinde bu tartışmayı insanın doğuştan iyi mi yoksa kötü mü olduğu şeklinde görürüz. Daha akademik bir ifadeyle bu tartışma insanların evrensel olarak sergilediği ve çevrenin yeniden yapılandırılmasıyla pek de değiştirilemeyecek davranış kalıplarının olup olmadığı şeklinde dile getirilebilir. Bu tür davranış kalıplarına şunları örnek olarak sunabiliriz: kıskançlık, aldatma eğilimi, mülk hırsı, açgözlülük, bencillik, dedikodu, yalan söyleme, saldırganlık, adalet duygusu, işbirliğine yatkınlık vb. Bu özelliklerin her bir bireyde görüldüğünü iddia etmek pek kolay olmasa gerek. Fakat yine de en azından ilk başta bu eğilimler

hepimizde belirli ortamlarda belirli düzeylerde ortaya çıkıyor gibi gözükmektedir. Eğer bunlar hepimizde her an ortaya çıkma potansiyeli olan saklı eğilimler ise, yani bunun böyle olduğu bilim tarafından kesin bir şekilde gösterilebilirse, sosyal sistemimizin buna göre şekillenmesi gerekir. Bu sosyal sisteme elbette ekonomik model ve hukuk sistemimiz de dahildir. İşte bu nedenlerle insan doğası tartışması son derece yakıcı ve hassas bir sosyal meseledir. İzleyen paragrafta benim tezimde savunduğum insan doğası modelini özetleyeyim.

Sosyal sahaya dair her meselede olduğu gibi insan doğası tartışmasında da bir dizi karikatürize edilmiş uç versiyonlar ile bunların arasında yer aldığı iddia edilen sayısız ara formül vardır. İnsan doğası problemi özelinde en karikatürize edilmiş uç iddia *aşırı katı bir genetik belirlenimciliktir*. Bu hayali iddiaya göre insanların birçok davranışı doğuştan genlerimiz aracılığıyla çok sıkı olarak belirlenir. Aynı mantıkla, bu hayali görüş tek yumurta ikizlerinin çok farklı yaşam öyküleri olsa bile benzer türden gömlekler giyeceklerine kadar birbirlerine benzeyecekleri öngörüsünde bulunur. Bu yaklaşıma göre sosyal düzenlemeler neredeyse doğrudan insanın evrensel ve değişmez davranış kalıplarını yansıtır. Diğer bir deyişle, sosyal yapı ve kültürel uygulamaların insan davranışını belirlemesi şöyle dursun, tam da aksine insanların kişisel özellikleri ve bunların yarattığı çatışmalı ilişkiler sosyal yapı ve kültürel uygularımızın genel gelişim rotasını belirler.

Diğer uçta ise insan davranışının, kendisinin nasıl ortaya çıktığı belli olmayan, bir üst sistem olan sosyal yapı ve ilişkiler tarafından biçimlendirildiğini savunan geleneksel sosyal bilimler modeli vardır. Bu mantığa göre insan doğası diye sabit (ya da istikralı) ve evrensel bir olgudan söz etmek kabul edilemez. Her çağın ve mekanın kendi ortalama ya yaygın davranış eğilimleri ve kişilik özellikleri vardır. Yani insan doğası varsa bile o sosyal ilişkilerin bir özetidir. Bu iki uç fikrin arasında dipsiz bir fikirler okyanusu yer alır. İlk uca yakın olan ama hayali değil de hakikaten var olan önemli bir yaklaşımın adı ‘evrimsel psikoloji’dir. İkinci uca yakın görüşler aslında bu tezin kapsamına pek girmemektedir. Fakat iki uç arasında bir yerlerde ‘kültürel biyoloji’ genel başlığı altında yer alabilecek sayısız akım yer almaktadır. Beni bu çalışmada esas ilgilendiren işte ilk uca yakın olan ‘evrimsel psikoloji’ ve iki ucun

ortasında yer alan ‘kültürel biyoloji’ yaklaşımlarıdır. Şimdi izninizle bu iki görüşü tezimin ana fikri açısından karşılaştırayım.

Evrimsel psikoloji, ismi öyle ima etse de, aslında psikolojinin evrimsel bir alt disiplini değildir. O bir düşünme biçimidir. Bir dizi temel iddiası vardır. İnsanların evrensel olarak taşıdığı modüler özellikler sergileyen bir zihin yapısı olduğu bu iddiaların başında gelir. Kabaca söylersem her modül evrimsel adaptasyon gerekçesiyle uzun yıllar boyunca seçilerek türsel özelliklerimizi oluşturmuştur. Yani zihin modülerdir, evrenseldir ve büyük oranda doğal seçilimle yerleştiğinden genetik olarak gelişimi belirlenir. Zihnimiz böyle özellikler sergiliyorsa, kişiliğimiz de paralel özellikler gösterir. Yani kişiliğimiz büyük oranda evrimsel tarihimizin bir ürünüdür, kalıtımsaldır ve yüksek bir evrensellik arz eder. Doğal seçilim acımasız bir rekabetçilik sergilediğinden, hayatta kalmak ve üremek en yüce kıstaslar olduğundan ortaya çıkan evrensel birey her an acımasızlık sergileyebilecek, hayatta kalmak için türdeşlerine ve doğaya pek çok gaddarlık yapma potansiyeli taşıyan ve daha çok çocuk ve toruna sahip olma yolunda şiddetli bir cinsel dürtü taşır. Bu akıl yürütmenin doğal bir uzantısı sosyal sistemimizi radikal şekilde yeniden yapılandıramayacağımız, yapılandırmayı denediğimizde başarısızlık ve sosyal yıkımla karşılaşacağımızdır. Gerçekten de evrimsel psikolojinin kurucuları, devamcıları ve reklamcıları değişen oranlarda da olsa buna çok yakın fikirler beyan etmişlerdir. Şimdi uçların ortasında yer alan kültürel biyoloji genel adlı yaklaşımı özetleyip ardından ikisini karşılaştırayım.

Kültürel biyoloji, adının da ima ettiği üzere, biyolojimiz üzerinde kültürel etkileri vurgulayan bir dizi akımdan biridir. Burada kültürel etkilerden kastedilenlerin menzili çok geniştir. O kadar geniştir ki neredeyse DNA diziliminin dışında kalan her şey genel bir ‘çevresel’ kategorisinin içerisine yerleştirilmiştir. Yani bir tarafta DNA metilasyonu diğer tarafta hukuk sistemiz yer alır. İkisi de DNA sekansı dışı etmenler olarak değerlendirilir, ki öyledirler de. Fakat bu ciddi bir kafa karışıklığı, belirsizlik ve büyük-ölçekli sosyal ilişkilerin analizinin ihmaline yol açar. Yine de hukuk sisteminden, çalışma rejimine, ekonomik paylaşım ilişkilerinden etik değerlerimize kadar birçok son derece etkili sosyal ve kültürel faktörü vurgulamak

ve hatta bunların biyolojimiz, ki buna gen ifadesi de dahildir, üzerine çok köklü bir etkisi olduğunu söylemekle kültürel biyoloji evrimsel psikolojiye göre kültürel nörofelsefeye çok daha uyumlu bir karakter sergiler. Elbette kültürel biyoloji, aynen nörofelsefeci Patricia Churchland'ın da iddia ettiği gibi, çok az sayıda da olsa bir takım evrensel ve evrimsel olarak benliklerimize kazınmış temel özelliklerin olduğunu kabul eder. Bunlar en temelde şunlardır: kendini koruma içgüdüsü, sevdiklerine özen göstermek ve ait olma isteği. Bunlardan ikinci ama özellikle de üçüncüsü türümüzün çok ileri derecede sosyal bir tür olduğunu hatırlatır bizlere. İlki ise hayvanların evrensel ortak özelliğidir. En dipte bu üç temel insan özelliği birbirleriyle oldukça karmaşık ilişkilere girer. Bu ilişkiler çatışma ve gerilimi de kapsar. Burada önemli olan nokta şudur. Sosyal üst-yapımız insanların bu üç temel ve evrensel türsel özelliğinin hangi biçimleri alacağını ve ortaya nasıl bir davranış modeli ortaya çıkaracağının çok önemli bir belirleyenidir. Böyle olduğunda kültürel biyoloji evrimsel psikolojiyle neredeyse ters düşmektedir. Çünkü evrimsel psikoloji, eski adıyla sosyobiyoloji, sosyal yapının bırakın önemli bir belirleyici olmasını, tam da tersine önemli derecede insan doğası tarafından belirlendiğini iddia etmektedir. Yani ilişkinin yönü ters yüz edilmiştir.

Çok önemli bir husus da şudur ki felsefeciler ve sosyal bilimciler, özellikle de Anglo-Amerikan dünyasının dışındakiler, evrim kuramını kabul eden ve analizlerine dahil eden tüm yaklaşımları terazinin aynı kefesine koymaktadırlar. Bu çalışmada ben bu iki birbirine görünüşte benzeyen yaklaşımın aslında birbirinin zıddı olduğunu göstermiş bulundum. Fakat bunu başardıysam bile bu kültürel biyolojinin sosyal etmenleri analizlerine benim kafamdaki güçlü şekliyle dahil ettiği anlamına gelmez. Başlarda ihracatçı-ithalatçı ve asgari ücret komisyonu dengeleri örnekleri ile açıklamaya çalıştığım gibi, nöral analizin hiçbir işe yaramadığı veya pek bir işe yaramadığı çok önemli parametreler vardır. Bu parametreler tarihin, siyaset biliminin, ekonominin ve sosyolojinin doğal araştırma sahalarıdır. Kuşkusuz çalışmamın ana hatlarının açıkça ortaya koyduğu gibi ben bilimler arasında ve ayrıca bilimler ile felsefe arasına kategorik ayrımlar konmaması gerektiğini savunuyorum. Dolayısıyla söylediğim hiçbir şey biyolojik bilimler ve sosyal bilimlere görev sahası tayin etmek olarak algılanmamalıdır. Bizim yapmamız gereken bilimler arasındaki

idari sınırları değil problemleri takip etmektir. Problem bizi nereye, hangi yönteme ve inceleme düzeyine götürürse biz oraya gitmeliyiz. Problemin peşine, aynı peygamberin ilimin peşinde Çin'e gitmesi gibi, hiçbir önkoşul koymadan düşmeliyiz. İşte insan doğası tam da felsefenin kendisini biyolojiden ayıramayacağı, ama biyolojinin de doğal olarak sosyal bilimlere bağlandığı bir kesişim noktasıdır. Felsefi önemi ve daha önemlisi felsefi güzelliği da tam da burada yatmaktadır.

Peki, ben bu çalışmada yukarda bahsettiğim kesişim sahası içinde somut bir çalışma yapmış oldum mu? Cevap olumsuzdur, çünkü bu tezin amacı burada sorunun tam da bu üç büyük disiplinin kesişim sahasının içerisine düştüğünü ve çalışmanın buna uygun olarak yürütülmesi gerektiğini göstermekti. Tüm bilimleri ve felsefeyi ortak kesen büyük bir çalışmanın kendisinin nasıl yürütüleceği, yola nereden çıkılacağını, hangi başlangıç varsayımlarının veri alınacağı bu çalışmanın amacını hayli aşar. Fakat yine de bazı büyük eksikleri sergilemek ve bundan sonra nasıl bir rota izleneceğinin ana hatlarını vermek bilimsel yazımın bir gereğidir. İlk büyük eksiklik büyük-ölçekli olmayan mikro-sosyal bilim diye adlandırdığım araştırma alanlarının bugüne kadar felsefi problemlerin çözümüne önemli bir katkısının olup olmadığını incelemekti. Ben burada bunu yapamadım. Bunun bir dizi birbiriyle bağlantılı nedeni vardı. İlki belki biraz usandırıcı gelecek ama yer sıkıntısı idi. Master tezi yazmanın kendince bir doğası var. En azından bizim bölümümüzün de içinde yer aldığı modern Anglo-Amerikan felsefi gelenek odaklanmış, daldan dala atlamayan, adım adım giden ve on dokuzuncu yüzyıl Alman geleneğinden herhalde daha kısa metinler yazmayı gerektiriyor. Bu geleneğe bağlı kalmak istedim. İkincisi bu tür mikro-sosyal bilim çalışmalarının iç doğasının karmaşıklığıdır. Mesela nöroekonomi ve davranışsal ekonomi mikroekonomi disiplinin içerisinde yer alırlar. Bilgisayar simülasyonu, genetik, beyin görüntüleme, deneysel çalışmalar ve bolca görgül tahmin bu alanlar için en temel araçlardır. Bunların her birinin bolca tartışılması gereken metodolojik sıkıntıları vardır. Bunları ele almadan o alanlarda yapılan çalışmaların güvenilir olup olmadığı hakkında bir yargı belirtmek doğru olmazdı.

Bir ikinci büyük eksiklik nörofelsefenin neden büyük ölçekli sosyal yapıları ve ilişkileri tahlillerine dahil etmediğiydi. Bu çok ilginç bir husustur. Tezimde de belirttiğim gibi Patricia Churchland aslında bazen gayet bütüncü tahliller yapabilmektedir. Kuzeyli İnuitler ve Amerikalı Yanomamölar arasındaki köyler arası şiddet ve savaş örüntülerini arasındaki çok çarpıcı farklılıkları muhteşem bir bütünlükle açıklarken mesela 1992 Los Angeles ayaklanması hakkında insanın şiddet eğilimlerinin ne kadar da çabuk ortaya serilebileceği ve böyle durumlarda ılımlılık ve aklıselimin hakim olması gerektiği şeklindeki pek de etkileyici olmayan beyanları gerçekten bilimsel bir hayal kırıklığı yaratmaktadır. Eski SSCB hakkında veya Mao yönetimi altındaki Çin'deki kültür devrimi hakkında geçerken yaptığı yorumlardaki yüzeysellik ise rahatsız edici boyutlardadır. Belki de biyolojik-merkezli bu görüşleri makro-sosyal bilimleri ihmal etmekle eleştirmek yerine onları sadece işlerine geldiği zaman devreye sokmakla eleştirmek daha doğru olurdu. Çünkü Churchland olsun kültürel biyolojinin kurucuları olsun kimi zamanlar standart Batı tipi liberal bir toplumsal işleyişi arka planda varsaydıklarını bize net olarak göstermişlerdir. Mesela Patricia Churchland'ın 2011 yılında yayınlanan *Nörobilim bize ahlakımız hakkında ne söyleyebilir?* adlı kitabında güvenin nasıl anne-çocuk arasından birbiri ile hiçbir akrabalığı bulunmayan milletler arasına yayılacak kadar genişlediğini anlattığı kısımda bize tipik bir yeni dönem liberal iktisadi tarih anlayışını sunmuştur. Özetle piyasa ilişkileri ve ticaret kabileler arasındaki düşmanlığın yerini güvenin tesisine bırakmıştır. Eğer piyasaya güven devam ederse, bireyler dürüstçe alışverişi sürdürür ve buna paralel istikrarlı bir sosyal ve siyasal sisteme sahip olurlar. Eğer insanlar piyasaya güvenini kaybederse yatırımlar durur, ekonomik kriz patlak verir, ve ekonomik kriz de sosyal ve siyasal krizi peşinden sürükler. İnsanlığın refah ve esenliği dara düşer. Bu sosyal olarak arzu edilen bir durum değildir. Bizler evrimsel seçilim sayesinde refah ve esenliğimize önem veririz. Bizim temel türsel özelliğimize aykırı olan daralan refah ve esenliği arttırmak için güven gerekir. Güven için adil ticaret, ve adil ticaret için büyük oranda serbestleştirilmiş ve tam rekabetçi bir piyasa ve bu piyasaların istikrarını koruyan bir dizi sosyal kurum lazımdır. Elbette bu kurumlar hiç şaşmadan Batı'da mevcut bulunan demokratik kurumlardır.

Bu akıl yürütme ne kadar da tanıdık değil mi? Bu gördüğünüz herhangi bir liberal sosyal bilimcinin öne sürebileceği bir dizi varsayıma bağlı bir mantık silsilesidir. İşte ben çalışmamda bunun geçerli olup olmadığını incelemeyi ihmal ettim. Bu mesele ilk bakışta görünebileceğinden çok daha mühimdir. Önemi şurada yatar. Acaba nörofelsefeciler benim onların yapmadığını iddia ettiğim sosyal analizi tümüyle sosyal sahadaki çerçevelerden biri olan liberalizme emanet etmiş olamazlar mı? Bu kuvvetle muhtemeldir. O zaman şu sorun ortaya çıkar. Yapılan meşru mudur? Bu soruyu aklıma düşüren şeyse şudur. Beyin ve davranış bilimlerinde de aynen sosyal bilimlerde olduğu gibi bir dizi bazen birbirleriyle ters düşen çerçeveler vardır. Biyolojik bir bilim olmak sizi bu durumdan hiç mi hiç kurtarmaz. Beyin bilimlerinin sonuçlarını diyelim ki psikoloji yahut bilişsel bilime uygulamak isteyenler bu çatışan yaklaşımlardan bir tanesini seçmeyi uygun bulurlar. Elbette Churchland da diğerleri gibi bazı tercihler yapar. Fakat dikkat ederseniz Churchland beyin bilimleri ile ilgili bir bulguyu veya spekülasyonu kendi analizlerine dahil edeceği zaman gerçekten çok yüksek bir akademik ihtiyatlılık sergiler. Buraya kadar her şey olması gerektiği gibidir. Ne yazık ki, demin anlattığım türden sosyal yapıların nasıl işlediğine ve sosyal tarihe gelince nörofelsefeci bir anda tüm akademik ihtiyatlılığını elden bırakır ve sıradan bir insan gibi kendisine makul gelen, belki de tek bildiği kuram olan, liberalizmi sanki ortada ona rakip başka güçlü sosyal kuramlar yokmuş gibi tümüyle benimser. İşte bu Patricia Churchland'ın bu tezin konusu açısından en temel ama ölümcül hatasıdır. Kültürel nörofelsefe işte bu temel yaklaşım ikiciliğini aşmaya yönelik olarak ortaya sürülmüştür.

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Soyadı : TÜMKAYA
Adı : SERDAL
Bölümü : FELSEFE

TEZİN ADI (İngilizce) : IS CULTURAL NEUROPHILOSOPHY POSSIBLE?

TEZİN TÜRÜ : Yüksek Lisans [X] Doktora [ ]

1. Tezimin tamamından kaynak gösterilmek şartıyla fotokopi alınabilir. [X]
2. Tezimin içindekiler sayfası, özet, indeks sayfalarından ve/veya bir bölümünden kaynak gösterilmek şartıyla fotokopi alınabilir. [ ]
3. Tezimden bir (1) yıl süreyle fotokopi alınamaz. [ ]

TEZİN KÜTÜPHANEYE TESLİM TARİHİ: 15.09.2014